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Original Articles.

EXTERNAL ESOPHAGOTOMY FOR IMPACTED FOREIGN BODY.

TWO RECENT CASES WITH RECOVERY IN EACH.

BY CHARLES A. POWERS, M.D.,
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CASE I. On March 16, 1897, Mr. F., a man of fifty years, while eating his midday meal swallowed a large bolus of mutton, which stuck in his throat. The lodgment of this occasioned considerable pain and effort at regurgitation; immediately afterward he was unable to swallow either solids or liquids. He had removed both upper and lower plates of false teeth before going to the table, and so had been unable to properly masticate.

Shortly after the accident he was seen by Dr. L. M. Walker, who kindly brought him to me an hour later. The patient did not know whether there was bone in the piece of meat swallowed; he complained of pain and of "feeling something" in the throat just below the larynx.

On examination deep pressure behind the cricoid cartilage elicited a little pain; the patient was able to swallow water by taking considerable time and making a good bit of effort. Successive sizes of esophageal bougies were introduced, beginning with one of large calibre; all of these were arrested seven and one-half inches from the dental arcade; unsuccessful attempts were made to grasp the foreign body with an alligator forceps. The patient was advised to attempt to swallow what milk he could.

On the following day, March 17th, he was examined, both morning and afternoon, with the same result as on the preceding day, no instrument passing beyond seven and one-half inches. He could swallow liquids very slowly; a teaspoonful of milk seemed to pass the obstruction after two or three gulps. Attempts at instrumentation provoked much coughing and considerable flow of mucus. He was advised to endeavor to take three pints of milk and six ounces of freshly expressed beef-juice in twenty-four hours, and to move the bowels by rectal enemata.

Examinations were made on March 18th and 19th; the bougies seemed to strike on a solid substance, but no grating could be detected. The patient was taking the amount of food indicated, and the pulse and temperature did not go above the normal. On the afternoon of March 19th operation for the following day was advised, on the ground that a bolus of meat should have been disintegrated after this length of time. The patient was confined to bed and rectal nutrition was ordered.

External esophagotomy at St. Luke's Hospital on March 20, 1897, at 2 P. M. An esophageal bougie was passed just before operation, and again after the patient was under the influence of chloroform. With the chest well elevated and the head extended and drawn to the right side, a four-inch incision was made at the inner border of the sterno-mastoid muscle. This muscle was drawn to the outer side, the sterno-thyroid to the inner side; the internal jugular vein and carotid artery were recognized and retracted to the outer side, the descendens noni nerve and trachea being well drawn to the right side; the recurrent laryngeal nerve was recognized and protected. Palpation at the bottom of the wound and against the spinal column detected a sharp-pointed object, which was apparently in the esophagus and midway between the cricoid cartilage and the head of the sternum. On isolating the trachea and larynx and drawing them well to the opposite side, it seemed more than probable that this was a foreign body; a solid instrument of appropriate curve passed through the mouth could be felt only in the pharynx at the upper part of the wound. An incision was therefore made on this above-mentioned object, which was found to be a sharp corner of a piece of bone; the incision in the esophagus was enlarged to three-quarters of an inch, and the piece of bone (Fig. 1) was removed. It was triangular in shape, with sharp corners, one and one-fourth inches in its greatest length, and one inch on each of the other two sides, flat, about one-eighth of an inch thick; it lay transversely across the esophagus, the wall of which at the point of incision showed beginning ulceration of the mucous coat. When removed, the bone was almost entirely divested of meat. In extracting it great care was taken not to soil the wound; the wound itself was washed and the rent in the esophagus was immediately sewn with a continuous catgut suture, which passed through all of the coats except the mucous. The bottom of the wound at the site of the esophageal opening was well packed with iodoform gauze; this was brought out through the lower part of the wound and the upper half sutured; a large aseptic dressing was applied from the maxillary region to the upper part of the chest. The operation was one and one-half hours in length, and the patient was in good condition at its close. He was ordered to neither swallow nor talk; the mouth was kept moistened; he was given a six-ounce enema of peptonized milk, whiskey and the yolk of an egg every four hours, and during the first thirty-six hours a three-ounce normal salt solution was thrown into the rectum midway between the nutritives.



FIG. 1.

Aside from the extreme discomfort which attends the complete withholding of fluids by the mouth the patient had little of which to complain; the pulse did not go above 84 nor the temperature above 100°. On the fourth day the dressing was changed for the first time, and a little suppuration found along the track of the gauze drain. At the end of four days a stomach-tube was passed and nutrients administered through it; feeding by tube was repeated every six hours. The stitches were removed from the upper part of the wound on the seventh day, the lower part suppurat-

ing. On the tenth day the patient was allowed to swallow some milk, a little of which came out through the wound in the neck, showing that the rent in the œsophagus had not entirely healed. The neck wound was dressed twice daily, carefully cleansed well to its bottom and packed with iodoform gauze; it gradually contracted. On about the twentieth day, fluid swallowed did not appear in the wound, and shortly thereafter the wound itself was entirely closed.

During the first ten days after the operation the patient, who had hitherto been a robust and muscular man, emaciated markedly; but as soon as stomach feeding became adequate he quickly regained his former weight. He has had no difficulty in deglutition since discharge.

CASE II. William W., age two and one-half years, while playing with a toy train of cars on March 24, 1897, cried out with pain and ran to his mother; immediately thereafter he was unable to swallow, put his hands to his throat and was evidently in much discomfort. A wheel from one of the cars was found to be missing. Shortly afterward he was examined by the family physician, Dr. H. M. Ogilbee, of Manitou. The little fellow was able to swallow fluids, but any solid food caused much pain and was regurgitated; he was therefore fed on soups, milk, oatmeal mush and the like. A few days afterward he was seen in consultation by Dr. S. E. Solly, of Colorado Springs. The child had lost a little in flesh, but remained fairly well nourished. Inability to swallow solids continued.

On April 9, 1897, sixteen days after the accident, his physician brought him to me in Denver; at this time he was apparently strong and healthy, played about as usual, and was able to swallow milk and thickened liquids with but little difficulty. On the day on which I first saw him, and with the kind assistance of Mr. C. F. Lacombe, an expert electrician, I examined the boy with the aid of the x-ray. Fluorescopic vision distinctly revealed the wheel just above and behind the episternal notch; the rim and spokes stood out with startling distinctness. A picture was taken, the child being chloroformed and lying on its belly with the plate strapped to its chest and neck; a five-minute exposure was intended, but the tube broke at the end of three minutes; the resulting skiagraph, while imperfect, showed the presence and location of the foreign body with sufficient plainness.

On the following day, under chloroform, instrumentation of the œsophagus was attempted, but failed, as all of the instruments at my disposal were too large and too stiff for a child of this age; accordingly I had other instruments, smaller and more flexible, sent to me from the East. This necessitated a delay of four days, during which time the child remained in the same good condition.

On April 14th a further attempt was made, under chloroform, to remove the foreign body through the mouth. Careful and painstaking effort was made for about thirty minutes, but with no avail; there was irritation of the pharynx and upper œsophagus on hooking the finger behind the epiglottis to guide the instrument, and marked spasm of the glottis with suspended respiration ensued. It was frequently necessary to tip the child up and clear away the mucus. The only instrument which could be introduced into the œsophagus was a slender alligator forceps with spiral spring, and the child stopped breathing as soon as this entered the gullet. As Dr. Stedman (who was aiding) well said, the only time which we could utilize for this instrumentation was that during which the child could hold his breath.

Removal through the neck was therefore advised and was undertaken the following day. Shortly before operation a second x-ray picture was taken, in order to ascertain whether the foreign body had changed in position; the resulting picture showed the wheel about one-quarter of an inch lower than when the first skiagraph was taken.

External œsophagotomy was performed at 12 M., on the twenty-second day after the accident. A two and one-half inch incision was made along the inner border of the sterno-mastoid muscle from the sterno-clavicular notch upward; the inner border of this muscle was exposed, the omo-hyoid brought into view and divided transversely; the sterno-mastoid, together with the large vessels, was retracted to the outer side, the sterno-thyroid being drawn to the opposite side; the recurrent laryngeal and descendens noni nerves were not recognized. The thyroid gland came into view, as did also the remains of the thymus gland, the latter being large in amount, covering the surface of the trachea and markedly obscuring the deep portion of the wound itself. Blunt dissection was made back to the spine, on which were seen the longitudinal fibres of the œsophagus; the œsophagus was carefully palpated, but no foreign body could be detected. It was therefore opened, one-half inch above the head of the sternum, this incision being enlarged downward until one inch in length. The walls were held apart by silk sutures carefully introduced. About one inch below the lower angle of the wound in the œsophagus the upper margin of the wheel was seen; the foreign body (Fig. 2) itself was grasped with forceps and carefully withdrawn; it was so firmly fixed that quite a bit of force was necessary in order to extract it.

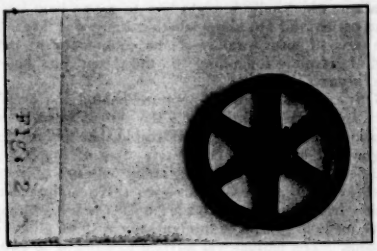


FIG. 2.

There was some vomiting through the œsophagus into the wound during the operation; this was promptly washed and sponged away, and the deep portion of the wound carefully protected at all times by gauze. The wound in the œsophagus was tightly closed by two layers of interrupted sutures of fine black silk, the inner of these layers passing to but not through the mucous coat. The external wound was thoroughly washed and completely packed, in part with iodoform gauze and in part with plain gauze moistened in a sublimate solution, one part in ten thousand; a large

external dressing was applied. The operation was one hour and fifteen minutes in length. The patient was in good condition at its close. A five-drachm rectal enema of peptonized milk containing five grains of bromide of sodium was given every four hours. Nothing was allowed by the mouth until the end of forty-five hours, at which time teaspoonful doses of boiled water were administered, followed a day later by teaspoonful doses of peptonized milk. During these first two days the child was exceedingly restless, sleeping at short intervals and constantly crying for water, but being relieved somewhat by frequent sponge baths. The pulse averaged 130 per minute, the temperature ranged from 100° to 101°; as soon as fluids could be administered by the mouth the little patient became more quiet and the pulse and temperature gradually fell. The first dressing was changed at the end of three days and the wound found to be aseptic; the rent in the œsophagus could be seen at the bottom; there was no leakage. The dressing was changed under chloroform daily thereafter, packing being carried well to the bottom; this alternated between weak solutions of bichloride of mercury, carbolic acid and iodoform gauze, in order to avoid the possibility of drug poisoning. The wound gradually filled; there was at no time leakage from the œsophagus, the sutures of sterile black silk were buried in the aseptic healing process, and fourteen days after the operation the little fellow was taken back to his home in Manitou. A recent letter from Dr. Ogilbee assures me that he has had no difficulty in swallowing; it is now a year since the operation. During the first few weeks after removal of the foreign body the voice was of high pitch and strident, but it has since resumed its normal tone.

But little need be said in way of comment on the class of accidents exemplified by the foregoing cases. In diagnosis we now have the invaluable assistance of the Röntgen ray; there can be no department of surgery in which this wonderful discovery finds better employment. Certainly it is to be resorted to in every instance in which we suspect the lodgment of a foreign body in the œsophagus. In the first of the foregoing cases the picture was of no aid, but the skiagraph was not of the best and the nature and position of the foreign body was such as to render diagnosis even by the best possible picture exceedingly difficult. In the second case fluorescopic examination of the patient made accurate diagnosis absolutely certain; most startling and vivid was the clear and distinct picture of the iron wheel, plainly outlined in its definite relation to the bony thorax.

Management of these foreign bodies impacted in the œsophagus must rest, when possible, on extraction through the mouth or on forcing them downward into the stomach; but we are not to forget that efforts at extraction may be in themselves dangerous, as when the sharp corners of a tooth-plate or a piece of bone may be driven into and through the wall of the œsophagus; we are to remember the important point laid down by Richardson, of Boston, that the coin-catcher or throat instrument employed in attempting extraction may itself become impacted and necessitate immediate operation for its removal. It is well, therefore, before attempting extraction by instrumentation to have everything in readiness for the immediate performance of external œsophagotomy should this be necessary. As one recalls the longitudinal position which the wheel occupied in the little child's gullet, it seems quite possible that a coin-catcher passed below it and drawn upward might so tilt the foreign body as to impact it firmly against the spine or trachea or larynx and so render the instrument itself impossible of withdrawal. Further, we are not to forget that attempts at forcing downward a cervical foreign body may lodge it midway in the thoracic portion of the œsophagus, where it would be difficult of access, either by œsophagotomy or gastrotomy.

Of the operation itself but little need be said. The incision is the classic one; the various structures are plainly recognized step by step, and the important vessels and nerves carefully protected. After extraction of the foreign body the œsophageal wall may be sutured, preferably by tiers of fine black silk, if the wall itself be in good condition; if it be ulcerated, the ulcer may be excised and the wall sutured, or the wound may be left open. The subject has been carefully considered in a recent and extended study by Bull and Walker. Whatever be the management of the wound in the œsophagus, the external wound should not be sutured but should be carefully packed to the bottom; this wound may extend to or into the chest, and adequate packing is the best protection against sepsis. If the wound in the œsophagus be left open, a stomach tube may be introduced through it at the time of operation, if the surgeon so desires. If the wound in the œsophagus be closed primarily, it will be best to withhold everything by the mouth until such time as firm union is probable; distressing thirst may be much relieved by rectal injections and by frequent bathing. Should the stitches in the œsophageal wall give way, it will be necessary to pack thoroughly until the hole is closed.

The mortality of the procedure will naturally vary with the different cases. It is most important not to delay operation until malnutrition saps the patient's strength. Further, the sharp corner of a foreign body may speedily ulcerate into and through the œsophageal wall. Bull and Walker found the death-rate to be 22.5 per cent. in a total of 167 collected cases, though in the 32 most recent cases the mortality was diminished to 15.6 per cent. The earlier the operation is performed and the less the integrity of the œsophageal wall is impaired the better will be the prognosis.

THE AMERICAN PEDIATRIC SOCIETY'S COLLECTIVE INVESTIGATION ON INFANTILE SCURVY IN NORTH AMERICA.[1]

J. P. CROZER GRIFFITH, M.D., CHARLES G. JENNINGS, M.D., JOHN LOVETT MORSE, M.D., COMMITTEE.

(Concluded from Vol. cxxxviii, No. 26, p. 609.)

DIAGNOSIS. — The study of diagnosis has been only incidental, based upon the mistakes made before the disease was recognized in certain cases. The only disease for which infantile scurvy was repeatedly taken appears to have been rheumatism. In several instances the affection of the legs was supposed to be due to sarcoma. The apparent paralytic condition has also been the cause of error in some instances.

DURATION OF ILLNESS AND PROGNOSIS. — The disease is essentially chronic; its course terminating only on the institution of proper treatment. This seems to be proved by the answers contained in the cir-

[1] Reported at the Tenth Annual Meeting, Cincinnati, June 2, 1898.

culars. To the question concerning the *duration of the disease before the case came under observation*, replies were received in 306 cases, of which the following analysis may be made:

DURATION OF DISEASE BEFORE TREATMENT WAS COMMENCED.

Days.	Cases.	Weeks.	Cases.	Months.	Cases.
2	3	1	15	1	18
3	3	2	33	2	42
5	2	3	58	3	31
8	1	4	22	4	14
9	1	5	8	5	4
10	9	6	29	6	7
24	1	7	6	7	3
		8	1	10	1
		10	3	12	1
				2½ yrs.	1

Intensely interesting in this connection are the replies to the next two questions: first, *Duration of illness after treatment was commenced;* and, second, *Duration of treatment before marked improvement was noticed.* To the first question replies concerning 308 cases were received. Of course those fatal during the attack of scurvy are not included here nor those which passed from observation.

Still more striking are the answers to the second question, as to the time when marked improvement was first noticed. There are 311 cases suitable for study in this category, excluding fatal cases and those passing from observation as before. The replies are often astonishing. Nothing is more striking than the speed with which these reports show a grave constitutional disease disappearing under proper treatment. There is certainly no disease for which a more specific treatment can be said to exist. The replies to the last two questions may be conveniently stated in the following tables:

DURATION OF TREATMENT BEFORE MARKED IMPROVEMENT WAS NOTICED.

Days.	Cases.	Weeks.	Cases.	Months.	Cases.
1	19	1	47	1	6
2	58	2	27	2	4
3	46	3	8	3	4
4	26	4	1		
5	19	5	1		
6	1	6	1		
7	2				
8	2				
9	1				
10	7				
12	2				

Reported as prompt recovery, 13; at once, 15; immediate, 1.

DURATION OF TREATMENT BEFORE RECOVERY WAS COMPLETE.

Days.	Cases.	Weeks.	Cases.	Months.	Cases.
1	6	1	48	1	28
2	5	2	54	2	14
3	14	3	36	3	5
4	8	4	14	4	2
5	5	5	6	5	1
6	1	6	14	6	2
8	2	7	1	7	1
10	17			8	1
12	3			9	1
13	3				
15	2				
16	1				

Reported as immediate, 4; almost immediate, 9.

TREATMENT. — Not so much could be learned of the value of treatment as could be desired on account of the fact that in nearly all cases we have a combination of diet and of medicinal measures, including the use of fruit juices, and it is impossible to determine absolutely which was the active curative agent.

Taking the cases in which treatment was effectual and which are suitable for study, the results may be stated as follows:

I. Cases recovering under treatment with drugs only (no change in diet)	0
II. Cases recovering under the use of fruit juice alone (no change in diet)	3
III. Cases recovering under the use of beef juice alone (no other change in diet)	2
IV. Cases recovering under the use of beef juice and fruit juice combined, with or without drugs (no change in diet)	6
V. Cases recovering under the combined effect of change of diet, often including beef juice, and employment of fruit juice, with or without drugs	257
VI. Cases recovering under change of diet, often including beef juice, and use of drugs (no fruit juice)	20
VII. Cases recovering under change of diet alone, often including beef juice (no fruit juice)	38

These last two may be properly considered together, since there is no evidence that any treatment with drugs has an appreciable effect upon the disease. So many of the reported cases were treated with drugs alone without result before the correct diagnosis was made and other treatment instituted, that this belief is amply justified. Combining, therefore, Divisions VI and VII, and comparing the statements of the writers regarding the diet employed during treatment and that employed when the scurvy developed, we may make the following table based upon 58 cases.

Again the committee would state that no claim is made that the recovery was the result of the change, but that it quotes merely the statements of the correspondents to the effect that recovery took place after the change was made.

VI AND VII. — RECOVERY FOLLOWING CHANGE IN DIET ALONE, WITH OR WITHOUT DRUGS. (NO FRUIT JUICE EMPLOYED.)

Mellin's food to milk and beef juice	2
" " to raw milk and beef juice	1
" " to modified milk	4
" " to modified milk and beef juice	2
" " to diet and beef juice	1
" " and sterilized milk to beef juice and broths	1
" " and sterilized milk to sterilized milk and beef juice,	2
" " and condensed milk to modified milk	1
" " and condensed milk to raw milk	2
" " and sarcopeptone to fresh milk and beef juice	1
Condensed milk to fresh milk and beef juice	1
" " to sterilized milk and diet	1
" " to lactated food and raw milk	1
" " to sterilized milk	1
Malted milk to milk and diet	1
" " to raw milk and beef juice	1
" " and amylacese to modified Pasteurized milk and beef juice	1
Sterilized milk to diet and beef juice	1
" " " to fresh milk and beef juice	2
" " to raw milk	4
" " to diet	6
" " to raw milk and beef juice	1
" " to sterilized milk and beef juice	1
" " peptonized to raw milk and beef juice	1
" " to Pasteurized milk and diet	1
" " to Pasteurized milk	1
Pasteurized milk to raw milk	2
" " to fresh milk and beef juice	1
" " to sterilized milk and broths	1
Raw milk to amylacese	1
Breast milk to peptonized milk and broths	1
" " to sterilized milk	1
Lactated food to raw milk and beef juice	1
Reed & Carnrick's soluble food to modified milk	1
" " " to baked potato	1
" " " to beef juice	1
Imperial granum to raw milk and beef juice	1
Patented food to diet	1
Ridge's food to diet	1
Diet (poor) to diet (better)	2
Bartlett's pepsinated food to fresh milk	1

It must be noted with regard to this table and those following that the term "modified" milk is used very loosely by the reporters. Occasionally it is specified to be laboratory milk, but much oftener this is not the case, and we are unable to know whether the modification was done at home or not, and whether the milk was heated or not. Presumably it was Pasteurized in many instances. Where the term "fresh" milk is employed in the table, we have been unable to learn by additional correspondence whether "raw" milk is meant or whether only a change from proprietary food to cow's milk is intended. The term "diet" as em-

ployed in the tables either expresses the fact that a large and varied number of different forms of diet were tried, too complicated to be detailed, or else quotes merely the statement of the writers that a change of diet was made, the original food probably being abandoned entirely unless otherwise stated.

The following table shows the food employed in Divisions I, II, III and IV, in which the diet was the same (except sometimes for the addition of beef juice) while the scurvy was developing and while it was recovering.

Recovery Following with no Change of Diet during Treatment.

I.	Treatment with drugs only	0
II.	Treatment with fruit juice only	3
	Mellin's food (milk sterilized)	1
	Sterilized milk	2
III.	Treatment with beef juice only	2
	Sterilized milk	1
	Raw milk	1
IV.	Treatment with combined beef juice and fruit juice only,	6
	Sterilized milk	3
	Sterilized milk and broths	2
	Sterilized milk and amylaceæ	1
	Table food	1

Division V contains by far the largest number of cases, 257 in all. The changes in diet employed are much too complicated to be stated fully in the table. Moreover, they are of little value, since the treatment was such a composite one, namely, change of diet combined with the use of fruit juice in every case, and often of beef juice and of drugs as well. A few of the more striking classes of cases may be selected as follows:

V. — Recovery Following Change of Diet Combined with Fruit Juice, With or Without Drugs.

Condensed milk to milk, variously treated	23
Imperial granum to milk, variously treated	7
Lactopreparata to raw milk	3
Lactated food to milk	1
Reed & Carnrick's Soluble Food to milk, variously treated	3
Malted milk to milk, variously treated	38
Mellin's food to milk, variously treated	21
Mellin's food and condensed milk to milk, variously treated	19
Sterilized milk to fresh (probably always raw) milk	34
Sterilized milk to Pasteurized milk	4
Pasteurized milk to "fresh" or "raw" milk	9
Pasteurized milk to sterilized milk	1
Raw milk to sterilized milk	1
Breast milk to cow's milk, variously treated	6

The conclusions to be drawn from this combined study of etiology and of treatment seem justifiable only to the following extent:

(1) That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet which at first thought would seem to be unsuitable may be followed by prompt recovery.

(2) That in spite of this fact regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First in point of numbers here are to be mentioned the various proprietary foods.

(3) In fine, that in general the cases reported seem to indicate that the farther a food is removed in character from the natural food of a child the more likely its use is to be followed by the development of scurvy.

Fatal Cases. — Twenty-nine of the 379 cases are reported to have died. In 2 of these, death seems to have been remote from the attack of scurvy. Of the remaining 27 the causes as enumerated by the reporters are as follows:

Exhaustion, 6; cerebral hemorrhage, 3; diarrhea, 2; bronchitis, 2; vomiting (?) 1; convulsions, 1; pneumonia, 4; malnutrition, 1; pulmonary hemorrhage, 1; ulcer of stomach, 1; syncope and nephritis, 1; doubtful, 4.

It is difficult to determine in how many of these the scurvy itself could be held responsible for the death; probably in few if any.

Autopsies. — There have been handed in to the committee the reports of 6 autopsies in all, some of them only partial. The salient points of each may be enumerated as follows:

Case of Dr. A. Caillé. Child of nine months, ill about three months. Autopsy showed hemorrhagic spots on the pericardium and surface of the liver; sub-periosteal hemorrhage of the long bones.

Case of Dr. L. E. Holt. Child of twelve months; ill for two months. Autopsy showed separation of the lower epiphysis from the shaft of the left femur; extensive sub-periosteal hemorrhage of the left femur; sub-pleural hemorrhages; broncho-pneumonia.

Case of Dr. L. E. Holt. Child of thirteen months; ill about two months. Autopsy showed sub-periosteal hemorrhage and separation of the lower epiphysis of the left femur; hemorrhages into the muscles of the left thigh, swellings about the opposite knee and both ankles; knee-joints normal; minute sub-pleural hemorrhages; well-marked exudative nephritis; minute hemorrhages on the surface of the liver.

Case of W. P. Northrup. (The first autopsy in the United States.) Child of eighteen months; ill about one month. Autopsy showed sub-periosteal hemorrhage of both tibiæ and both femora; detachment of the lower epiphysis of the left femur and maceration of lower end of shaft; broncho-pneumonia of left lung; no rachitic or syphilitic changes on microscopical examination.

Case of Dr. L. Starr. Child thirteen months; ill for three months. Autopsy showed "right leg from knee to ankle stuffed with a puffy mass replacing normal tissue. Separation of both bones one inch above ankle."

Case of Dr. C. W. Townsend. Child of ten months; ill three to four weeks. Autopsy showed bloody serum in pleural cavity; perforating ulcer of the stomach; tubercular (?) process in peritoneum.

In conclusion the committee would thank publicly their correspondents who have sent reports of cases and who are enumerated elsewhere. They are also much indebted to Dr. Wm. Schleif, of Philadelphia, for valuable aid in analyzing the circulars received and tabulating the results.

Clinical Department.

A CASE OF PAPILLOMATOUS URETHRITIS.

BY F. C. BALCH, M.D., BOSTON.

Tumors of the urethra are of comparatively infrequent occurrence or, at least, are rarely recognised. Papillomata, polypi and carcinomata occur, and I have found one case of keloid reported. Of these, papillomata are the most common. According to Klotz, they occur in or near the meatus frequently, but they are much less common farther down the urethra. Goldenburg thinks they are not rare, certainly not as rare as most authors are inclined to think, and will be found often, the more frequently the endoscopic method is used. The reported cases are not numerous, and, for my own part, I am inclined to consider them of rare occurrence. Papillomata are usually multiple, bleed easily and are sometimes tender.

Polypi are less common than papillomata. They

occur oftenest in the membranous and prostatic portions of the urethra. They are found later in life than papillomata, are usually single, not very sensitive and do not bleed easily.

Carcinoma of the urethra is exceedingly rare. It was first diagnosticated by means of the urethroscope by Oberländer.

Papillomata of the urethra do not differ histologically from papillomata of the skin. The poypi are fibrous growths covered by mucous membrane. Burkhardt reports one case of a polyp of the mucous membrane of the prostatic portion of the urethra.

Tumors of the urethra give rise to various symptoms, but the commonest are those of an obstinate gleet which refuses to yield to ordinary measures. On examining a urethra with the *bougie à boule*, the growth may simulate very closely a stricture, though, unless of large size, they offer but little resistance to the passage of a sound.

In the case I have to report, nocturnal emissions was the symptom for which the patient came to seek advice, and it is mentioned in other reported cases as a symptom. Goldenburg reports a case where there was retention from a polyp of the deep urethra which acted as a foreign body and caused a spasm of the cut-off muscle. He mentions a case in which Oberländer restored the power of coitus, which had been lost for several years, by removing a prostatic polyp. Eversole reports a case where the symptoms were itching and a gradually diminishing stream.

Papillomata and fibrous polypi can easily be diagnosticated with the urethroscope and their removal will often cure an otherwise untractable gleet.

The removal of these growths is not a very difficult operation, and should be undertaken either by cutting, by caustic or by the cautery. They are just as obstinate to return when they make their appearance inside the urethra as when they come on the outside. Papillomata are easier to remove than the polypi, both because they are nearer the meatus and because they are less firmly attached. Oberländer uses two small wires wound with cotton at the ends and, working through an endoscope, rubs the growth off. Klotz speaks favorably of this method when the growths are near the meatus. Briggs found it inefficient in a case where the growths were deeper down. The galvano cautery is an excellent way of removing both papillomata and polypi. Curved scissors and a snare are two other means which are useful at times. Some operators have used the ordinary Klotz endoscope as a cutting instrument, and having got the growth against the edge, pushed the instrument in, thereby tearing off the tumor. This is a somewhat blind method of procedure and less safe than the others mentioned. The growths can at times be scraped off with a curette against the edge of the endoscope. Trying to curette without something firm to hold the growth against, I found unsatisfactory in my case, but it ought to succeed well in any cases which could be removed by Oberländer's method. After the growths are removed, it is well to touch the base with chromic acid or glacial acetic acid. This can readily be done with a small bit of cotton wound about the end of an applicator. I found glacial acetic acid very satisfactory. It is easily applied and shrivels up the growth very quickly and effectually. They seemed less liable to recur than when I used chromic acid.

There is an instrument made especially for removing growths from the urethra, consisting of two endoscopic tubes, one inside the other. Both have elliptical openings near the end. The inner tube is revolved after the instrument is introduced, so that the openings are opposite each other. The growth is then slipped through the hole and the inner tube rotated so as to cut it off from its base.

One of these methods will do in almost all cases, but there is occasionally a growth where perineal section is the only thing which will succeed. Such a tumor is described by Mr. W. H. Brown in the *Lancet* of April 18, 1891. In this case the tumor was two inches long and attached at both ends. Mr. Brown thought it had probably originated in the bladder, been washed into the urethra and finally become adherent from inflammation. The growth was in a boy of eighteen years. He died of uremia following the passage of a sound, but it is hard to see how the growth could have been removed by any of the usual methods.

Thomas Bryant reports another case of polypus in the prostatic urethra removed by perineal section. The result was very satisfactory, but from the description of the case it seems as if it might have been removed through the urethra. The prostate was greatly enlarged and the polypus appeared to have been an outgrowth from it. It was made up of interlacing bundles of unstriped muscular tissue with no trace of gland structure. It was as large as a large haricot bean.

Dr. George Minges reports a case of keloid of the urethra following an internal urethrotomy. It is the only case of the kind I have been able to find. It seems to have acted much as keloids in other parts of the body, and though thoroughly removed, recurred after each operation.

In operating for growths of the urethra, hemorrhage is usually troublesome only in so far as it interferes with our view of the field of operation. At times it may be quite severe, but is usually readily controlled.

For anesthesia cocaine is usually sufficient. It is used in different strengths by various operators, some using as high as a ten-per-cent. solution. I use four-per-cent. in most urethral operations, and have had no toxic effects, while it renders the urethra entirely insensitive.

J. A. C., twenty years of age, had a mild attack of gonorrhea four years before I first saw him. Apart from that there was no venereal history. For the last four months he had had rather frequent seminal emissions, for which he had had sounds passed. He had had no treatment for a month and a half. Two months before I saw him he had noticed what he thought was a wart growing from the edge of the meatus and a slight purulent discharge from the urethra. No scalding. No exposure. The wart was burned off two or three times with chromic acid, but returned. When I saw him there was considerable obstruction to the flow of urine, which came in a small scattering stream. On December 1, 1894, the meatus having been divided some days before, I put in an endoscope and found the anterior urethra thickly studded with papillary growths, the deepest being about two inches from the meatus. These growths varied in size from one (one-half inch from the meatus) which was as large as a cherry-stone to one about the size of a pin-head; the larger ones were nearest the meatus. Thirty minims of a four-per-cent. solution of cocaine injected into the urethra gave perfect anesthesia. I first tried to remove the growths with a curette, using Brown's wire endoscope. While portions of the growths were readily removed, I had much trouble in scraping off the bases, which were much firmer. I then screwed the endoscope open until the urethra was fully distended and, with my finger on the outside, pushed a growth in so that it projected in between the wires. The endoscope was then drawn out and the sharp edge at the inner end cut

the growth off very readily. This process was repeated until the urethra was smooth. The hemorrhage was not troublesome except from obscuring the vision somewhat at times. When all the papillomata had been removed, I again introduced the Klotz endoscope and carefully touched the spots where the growths had been with glacial acetic acid. The whole anterior urethra was then washed out with a solution of boracic acid.

A week later I saw the patient again. There had been some slight hemorrhage after the operation, but he had had no difficulty in controlling it. There was considerable injection of the anterior urethra and considerable ecchymosis under the mucous membrane of the anterior two and one-half inches, but very little tenderness and no return of the growth. The anterior urethra was painted with a solution of nitrate of silver, ten grains to the ounce. After two weeks two or three minute growths appeared near the meatus and were touched with glacial acetic acid. In a week more there was nothing to be seen except a little of the old ecchymosis. I passed Nos. 29 and 30 sounds. A week later I passed Nos. 29, 30 and 31 sounds. There was still a little discoloration of the urethra. Seven weeks later, three months after the operation, there had been no return of the growths and the appearance of the urethra was normal. Nos. 31 and 32 sounds passed easily. Two years later the patient came to me with a small chancroid. The urethra was then in normal condition. Unfortunately the specimens which were saved for microscopic examination were lost, but the growths had the appearance of the ordinary papillomata often seen about the glans penis.

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VENTRO-SUSPENSION OF THE UTERUS, FOLLOWED BY PREGNANCY AND LABOR WITHOUT COMPLICATION.

BY J. V. MEIGS, M.D., LOWELL, MASS.,
Surgeon to St. John's Hospital.

THE following case coming under my care at St. John's Hospital, and upon whom I operated, became pregnant almost immediately after her discharge; and as I have been carefully watching her with great interest, and as her pregnancy has been followed by labor at term with a happy result, I wish to report it and add my tribute to the great value of ventro-suspension in the treatment of perhaps the most disagreeable class of cases with which we come in contact — procedentia uteri. That any form of colporrhaphy, either anterior or posterior, or a combination of the two with Alexander's operation superadded, would have given her the relief — nay, the cure that ventro-suspension has — I have much doubt. Certainly, colporrhaphy would not, for with this operation I have had some experience, and have never seen a complete prolapse cured. As for Alexander's operation, I have never performed it, but feel certain that it would not be of any benefit in cases like this.

Mrs. O., housewife, aged thirty-five, mother of three children, came to me early in May, 1897, complaining of backache, "bearing-down sensation," and incontinence of urine. She also informed me that "something was dropping from her vulva down between her thighs," interfering greatly with her getting about, and that it had been so since the birth of her last child. Upon questioning her, the following history was elicited:

Her first child, a boy, was born in September, 1892, a slow and tedious labor with a slight tear of the perineum. After remaining in bed "the accustomed number of days" she got about, but with a feeling that something was wrong with her uterus, yet she let it go, thinking it would take care of itself. Her second child, a boy, was born in January, 1894, and after getting up, she noticed her trouble was worse than before, yet she hesitated until after due time, or in September, 1896, her third child, a girl, was born with a corresponding increase of trouble, until finally she came to me on the date given above.

Upon examination, made in erect position, I found that "the something" which she described was the uterus, and that it was in a position of complete prolapse with excoriations upon it where it came in contact with her thighs, and with eversion of both anterior and posterior vaginal walls. Examination in dorsal position showed uterus prolapsed, but freely movable. It could be easily replaced, but it would not so remain unless held. She also had a bi-lateral laceration of the cervix and a thick muco-purulent discharge from the uterine canal. Immediate operation was advised, curettement, repair of cervix and ventro-suspension, all to be done at the same time. She acted at once upon my advice and was admitted to St. John's Hospital, May 9, 1897. Operations were made May 11, 1897, after usual preparations:

First curettement was done, cervix was repaired and the abdomen opened in the usual manner, a short incision being made. Upon examining pelvic organs, the right ovary was found to be cystic. It was tied off and removed and then the fundus of the uterus was brought up to the abdominal wall and two deep sutures of silk were passed through the edges of the wall and through the fundus of the uterus. Other sutures sufficient in number to coapt the edges of the abdominal incision were introduced and all were tied. She went on and made an uninterrupted recovery. The coapting sutures were removed on the ninth day and the suspension sutures on the twelfth day, when examination was made and uterus found to be in correct position. Patient was allowed up on May 27th, or sixteen days after operation, and was discharged in good condition with uterus in perfect position, June 5th, or twenty-four days after operation. She immediately went home, and at once resumed her work without experiencing further trouble. She menstruated in June, shortly after returning home, but missed menstruating the following month.

In August she consulted me and told me that she thought that she was pregnant, and was fearful lest she have trouble on account of the operation. I assured her that she would not, notwithstanding the fact that I was rather afraid that she might have. She went on, however, without mishap and was

delivered March 27, 1898, of a girl weighing twelve pounds, Dr. Lawler being in attendance. She states that this baby was the largest, and the labor the easiest that she has ever had, and that her convalescence was the speediest.

I made an examination June 2, 1898, more than two months after confinement, and found the uterus in its normal position. I cannot see that either her pregnancy or her labor were in the least complicated by the ventro-suspension, and sincerely believe that without operation the chances are that pregnancy would not have occurred and, if it had, she would not have gone to term.

Medical Progress.

ORTHOPEDIC REPORT.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

(Concluded from Vol. CXXXVIII, No. 26, p. 616.)

ACHILLODYNIA.

GOLDTHWAIT [31] reports a case of this affection, of which too little has been written. The exostosis near the tendo-Achillis was diagnosticated by means of palpation, but the diagnosis was confirmed by a skiagraph. The tendo-Archillis was drawn aside and under an anesthetic a large bursa was opened, the lining membrane of which was found to be hypertrophied. Synovial fringes of the bursa were found which being caught between the bone and the tendo-Achillis caused pain. Exostoses, as described by Albert, Brackett and others, were present. The symptoms disappeared for a while by rest, but an operation removing the enlargement of the bone was done with satisfactory results.

FLAT FOOT.

Kirsch [32] advocates celluloid plates for flat-foot soles. The thickness of the sole varies from one and a half to four millimetres according to the weight of the child. The advantages of celluloid are that it is light, elastic, and more readily worked than metal. The ordinary thickness is sufficient for women and children, but for men should be strengthened by portions of celluloid dissolved in acetone.

CELLULOID AS A SPLINT MATERIAL.

Maass [33] confirms the experience of Landerer and Kirsch in the use of celluloid in making fixative apparatus. The writer uses a solution of celluloid in acetone. The solution is made the thickness of syrup by dissolving scrap celluloid in acetone, several days being taken for making the solution. Over a plaster cast of the part to which the corset or splint is to be applied, strips of thin muslin are wound, and over this the solution is applied and rubbed in; another layer of muslin is then wound on and more of the solution applied, until there are six or eight alternate coats of muslin and celluloid. The corsets are light, firm, elastic and of great durability.

ARTHRODESIS IN THE TIBIO-ASTRAGALOID JOINT IN PARALYTIC JOINTS.

Hennerberg [34] describes four cases. In one of a child, eight and a half years of age, a firm anchylosis followed in nine weeks. In one, a child fifteen and a half years of age, a firm anchylosis was found at the end of three months. In a third, seventeen and a half years of age, after four months firm anchylosis was observed. And in a fourth, success was obtained in a patient twenty years of age, but in this latter case anchylosis was observed five months after the operation.

Kirmisson [35] recommends careful laying bare of the cartilaginous surface of the bone with an ivory wedge placed between the astragalus and calcaneum. He bases his conclusions recommending this method on fifteen operations.

GOUTY DEPOSITS IN THE SOLE OF THE FOOT.

Kittel [36] describes, in the aponeurosis of the foot and in the bones, collections of small particles resembling concretions of sand, which may by the pressure interfere with the locomotion of the patients. In his opinion these are the result of interference with the circulation of the foot, especially long-continued exposure of the foot to wet. Under these conditions a gradually progressive degeneration takes place, which is followed by a necrosis of the tissues; a deposit of urates follows; stiffness, deformity and distortion of certain of the joints takes place. The clinical symptoms are not those of true gout, but are considered by the writer to be an atypical form of gout. Medicinal treatment against gout is useless, as the deposits of the urates are well encapsulated in necrotic tissue beyond the reach of any means of promoting absorption. For treatment, the writer recommends mechanical exercise with massage, accompanied by cloths wet in alkaline solutions.[37]

STUDY OF BLOOD IN RICKETS.

Morse [38] has examined 20 cases of active uncomplicated rickets in infants under two years of age. Three groups, according to the severity of the processes were made; those in which the manifestations are slight; those in which they are more severe; and those in which there is a splenic tumor. He concluded that most cases of rickets are accompanied by anemia of varying severity. As a rule, the severity of the anemia varies with the severity of the rachitic processes. The most common form of anemia is that in which the number of red corpuscles is normal or nearly normal and the percentage of hemaglobin is both absolutely and relatively diminished. The anemia may or may not be accompanied by leucocytosis. Leucocytosis occurs more frequently in cases with splenic tumor than in those without. The writer finds no form of anemia which is characteristic of rickets. The leucocytosis may be due to an increase of all the varieties of white corpuscles. The specific gravity varies with the amount of hemaglobin.

HOT-AIR TREATMENT OF JOINTS.

Charles H. Frazier [39] gives the results, and his conclusions drawn, after using some 300 baths to test its efficacy. The apparatus which he describes does not differ in principle from the ordinary forms which are at present much used. The time given to the bath varied from three-quarters to one hour, care being taken to keep free ventilation for the escape of moisture; and, if necessary, the limb was wiped off during

[31] Boston Medical and Surgical Journal, May 27, 1897.
[32] Centralblatt f. Chirurgie, 1896, No. 33.
[33] Wien. med. Blatt., July 15, 1896.
[34] Inaugural Dissertation, Berlin, 1896.
[35] Revue Orthopedie, 1896, No. 2.
[36] Berlin. klin. Woch. 1897, No. 17.
[37] Also, MacKenzie: New York Medical Journal, February 20, 1897.
[38] Boston Medical and Surgical Journal, April 22, 1897.
[39] Annals of Surgery, October, 1897, p. 485.

the bath to insure its dryness. The temperature of the bath averaged about 300° F., and in one instance, it registered 375° without discomfort on the part of the patient. In drawing his conclusions, he considers, first, the probable pathological conditions in the joint to be dealt with, and classifies these into (1) those of rheumatic origin, (2) those of tubercular origin, and (3) those of traumatic origin. In the rheumatic, the synovial membrane, ligaments, cartilages and periarticular structures are all involved to a greater or less extent, and consist of thickening with slight injection, and with hyperplasia of the ligamentous structures, which interferes with the movements of the joints. The cartilages are frequently rough, and present erosions. In tubercular joints, there is also a general involvement of all the structures. In the chronic traumatic forms, the articular structures are stiffened with plastic exudate, which afterwards forms a fibrous tissue and adhesions, which are the results of blood-clots or an exudation which bind together the folds of the synovial membrane or the articular surfaces.

Judging the individual case from this point of view, he considers that the gain to be accomplished may be accurately judged in the different cases, if the effects by the prolonged use of heat are regarded. The results of this heat are a diffuse hyperemia of the skin showing a dilatation of the capillaries; there is usually the sensation of a numbness of the part, which he considers due to the action of the heat on the superficial sensory nerve filaments; the body temperature of the patient is about one-half to one degree above normal; the pulse is increased from about ten to twenty beats, — all of which suggests an increase of blood-supply to the active part. The patient usually experiences less pain, and more freedom in movement after the application of the heat, which may be due to the anesthetic effect of the heat on the nerve-supply of the joint. Experimentally, the physiological effect of such heat has been shown to be increased arterial tension, the elevation of blood-pressure, dilatation of the blood-vessels, diminution of the erythrocytes, decrease of hemoglobin, increase in the elimination of nitrogen, and increase in the frequency of the heart's action.

The beneficial action of the heat cannot be explained on any constitutional effect where there is a diathesis, but we must consider the result as due to the local influence; and he questions the advisability of this form of treatment to any acute conditions, which are due to any form of infection, or to a diathesis; and particularly may this question be raised in those cases of rheumatic origin in which we theoretically would not wish to decrease the amount of nitrogen eliminated, or for the acute conditions of joints due to some specific form of inflammation, as for instance, tubercular, in which the advisability of increasing the hyperemia would be questionable. Excluding these cases, there is left only those of traumatic origin, and it is in these that this form of treatment has proved most useful. For in this condition, after a joint has been restored to its normal activity, there is no danger of inflammation from any latent diathesis or germ. This does not, however, apply to joints (tubercular, for instance) which have been healed, in which there remains only the result of the previous inflammation.

The details of treatment in 25 cases are given, with the results, both beneficial and negative.

The physiological effect of the local application of hot air on general metabolism is considered separately, and the results by different observers are quoted. Experiments were made by the author upon the patients with the same end in view, and in general coincide with the results of other observers, except in regard to the elimination of nitrogen, the results in his experiments rather pointing to the decreased elimination by the treatment.

He gives the following conclusions of the physiological effects of hot air: (1) temporarily increased circulation, respiration and fever; (2) moderate fungacious local anesthesia; (3) loss of weight, probably due to loss of water from the skin and lungs; (4) a decreased nitrogenous output; (5) the effects of hot-air baths are purely local in origin.

GONORRHEAL INFLAMMATION OF JOINT TENDON SHEATHS AND BURSÆ.[40]

Nasse considers that this form of arthritis has many varieties, but he classifies them roughly under three types: One, characterized by pain as a most prominent symptom, with effusion into the joint, but with little affection of the capsule; another, considered more serious, in which the periarticular tissues are involved, there being little or no joint diffusion, although there may be deposits of pus or fibrino-purulent material; and a third, which is fortunately less common, but has the characteristics of pyemic joint suppuration, which may extend into the periarticular structures resulting in cellulitis. These cases are probably not due to the gonococci, but to other pyogenic organisms. The inflammation of a tendon sheath he considered as common, either alone, or accompaning the arthritis, but with mild constitutional symptoms. The inflammation of the synovial bursæ resembles closely that of the joints and the tendon sheath, but the inflammation is less marked. He considers the treatment to be expectant, consisting of rest and compression, with immobilization, and only in the more severe cases should operative treatment on the joint be attempted, and particularly is this true during any stage of the activity of the original condition. It is usually possible to find the organism in the joints, he having found it in 19 cases out of 30, which were examined for this purpose. The fact is that these metastases usually come late, but not necessarily so, and the process is apparently dependent on the infection of the deeper layers of the mucous membrane of the urethra, rather than to any particular region. Sometimes trauma seems to play a certain part in determining the localization of the metastases.

OSTEOMYELITIS IN INFANCY.[41]

Swoboda has treated this subject. Although this is a disease which has as yet received very little attention, he thinks it is one which should bear more study. The diagnosis is to be made between that of tubercular and syphilitic disease; and yet it frequently is difficult, as tubercular disease as well as osteomyelitis often begins with temperature, pain, and other evidence of an acute invasion. On the study of the cases already published, the following facts he considers as distinctive: (1) the multiplicity of the foci in the bone, (2) the frequency of the separation of the epiphyses, (3) the frequent involvement of the joint, (4) the acute course of disease. For the treatment, he speaks of the rapid cure by the early cutting down on the dis-

[40] Sammlung. klin. Vorträge, N. F., No. 181.
[41] Wien. klin. Woch., 1897, x, 87.

eased focus, and evacuating pus and giving drainage. This, however, must be early to be successful.

BLENORRHAGIC ARTHRITIS.

König[42] thinks it is advisable in all acute inflammation of the joints to examine the urethra. In 90 per cent. of the cases urethritis will be found. The cases may be divided into four groups: first, where effusion alone occurs; second, where there is formation of fibrin and thickening of the capsule; third, periarticular plegmon with impairment of the action of the tendons and elasticity of the ligaments; fourth, where anchylosis occurs very early. The writer advises the puncture of the joints and the injection of a solution of carbolic. If there is a periarticular affection, the joint should be opened and washed out.

TRIGGER-FINGER.

Jeannin[43] describes, as a cause of this deformity, a narrowing of the tendon sheath of the flexors at some point. The treatment should usually be expectant, as the affection is not infrequently self-limited. Where operative treatment is necessary, it should consist of a widening of the sheath and the complete removal of the obstacle.

Heilborn[44] had an opportunity of observing this affection upon himself. It was developed during his military service, and began with slight pain and a sense of fatigue following a drill at the manual of arms. On the metacarpo-phalangeal joint of the middle finger enlargement was to be felt. A smaller but similar one was felt on the little finger. Straightening of the finger was accompanied by a sharp cracking noise, and bending, with a duller crepitus. Recovery followed an operation, which remained permanent two years after the operation.

A PENDULUM APPARATUS FOR CONTRACTED FINGERS AND HAND.

Nebel[45] describes this apparatus, which consists of an arrangement that can be attached to the side of a table, applicable to increasing the motion of stiff finger-joints. The writer claims that it is surprising how quickly the stiffness of the fingers can be relieved by this pendulum appliance, and with how little pain on the part of the patient. Patients who resist any attempt at passive motion in the ordinary way, after a short time under the correction of the pendulum apparatus, allow considerable motion. The apparatus is modelled according to the principles of Krukenberg, and is a modification of his plan.

THE DEVELOPMENT OF GANGLIA OF JOINTS.

Oelze (Würzburg, 1896), following microscopic examination in five cases, considers the ganglia to result from a colloid degeneration of the periarticular ligamentous tissue. This degeneration takes place in different portions of the cellular tissue. Cavities and cysts are formed which unite. A thickened ligamentous tissue constitutes the walls of the cysts. The contents of the cysts are a homeogeneous mass with a few rice-seed bodies. No endothelium is to be found. These ganglia are most frequently seen on the dorsum of the hand, but they may be found on the palm of the hand, on the knee and on the ankle. Analogous cysts near tendons are more rare but may be observed.

INFANTILE PARALYSIS.

Drobnik[46] describes 16 operations for transplantation of the muscles in infantile paralysis, and states that it is very difficult to determine by electrical examination what muscle is completely destroyed and what muscle can be later developed. He has found atrophied muscles in certain cases which did not react to electrical irritation, in some instances have developed activity after the partial restoration of the use of the limb. The surgeon is careful to plant the tendon in a state of tension so as to admit a relaxed condition of the transplanted muscle. Massage, active and passive motion, should be begun with care. Adhesive plaster is applied for a while to prevent stretching of the newly formed tendon.

CASE OF INFANTILE PARALYSIS IN A CHILD FIFTEEN DAYS OLD, WITH RECOVERY.[47]

This unusual observation is made in the case of a child fifteen days old; the attack began with a paresis of the fingers and toes, and paralysis of the hand, arm and upper arm, and the foot and muscles of the leg. The attack was developed without fever. There were no cerebral symptoms. Complete recovery took place in four weeks.

THE SURGICAL TREATMENT OF CONGENITAL SPASTIC PARALYSIS.

Lorenz[48] advises tenotomy of the spastic muscles, with attempt through separation to lengthen the divided tendons. In spastic equinus the foot should be kept from four to six weeks overcorrected. After this the pronators, the weakened tendo-Achillis, and the whole of the foot can be used. Where the knee is spastically contracted after tenotomy of the tendons of the semi-membranosus and gracilis, a lengthening of the tendons is to be expected, and a stretching of the knee even into the position of a slight genu-recurvation is desirable for a while. Instead of tenotomy, or myotomy of the adductors, Lorenz advises the use of force, under an anesthetic. He prefers stretching to an open myotomy. He combines in certain cases neurectomy with myotomy. All retaining apparatus is laid aside at the end of from four to six weeks. The increasing use of the limb, combined with massage, electricity and active gymnastics, will in time enable the patient to get about without apparatus.

SPASMODIC TORTICOLLIS.

Quervain[49] has collected 12 cases, operated upon by Kocher, in which a number of the muscles of the neck were involved. The operation consisted not in a division of the nerve, but the resection of a portion of the muscle affected. The first step of the operation is the removal of a portion of the sterno-cleido muscle two to three centimetres long at its upper attachment. An incision in the skin is then made, and after the superficial fascia is divided, the cucullaris, splenius complexus major and minor are cut through. After stopping hemorrhage the wound is sewed. In typical cases, the sterno-cleido muscles on one side are operated upon and the neck muscles on the other

[42] Sammlung. klin. Portrage, No. 170, 1896.
[43] Inaugural Dissertation, Paris, 1895.
[44] Loc. cit., Erlangen, 1895.
[45] Zeitschrift für Orth. Chir., 1897, p. 17, Band v, Heft 1.
[46] Zeitschrift für Chirurgie, Bd. xliii.
[47] Münch. med. Woch., 1979, No. 23.
[48] Wien. klin. Woch., 1897, Nos. 21, 25 and 27.
[49] Semaine Méd., 1896.

where the inclination of the head to one side was the chief deformity. Both operations were done on one side, and if the head was drawn backward, the neck muscles on both sides are divided. Kocher saw no evil results following this operation and in seven out of the eight, the attacks ceased completely. In four, the cure had lasted for one year; and in two, twelve years after the operation. In three, improvement followed; and in two, recovery did not take place because, according to Kocher, a sufficient portion of the divided muscle was not removed. Cutting or stretching of the nervous accessories has been done by Kocher seven times without benefit.

Meyer[30] describes five cases of what he calls a rotating tic, and considers them chiefly functional disturbances of the brain caused by overstrain of the body or nerves.

Walton[31] reports that resection of the spinal accessory is rarely sufficient, though this and perhaps the section of the sterno-mastoid should be done as a preliminary operation. In exceptional cases where the rotators and sterno-mastoid are affected on the same side, the section of the spinal accessory and posterior branches of the three first spinal nerves can be done at once, the affected muscles should be cut also. In the majority of cases the operation should be done at two sittings.

FORCIBLE CORRECTION OF CONGENITAL DEFORMITIES OF THE NECK.

Reiner,[32] after division of the sterno-cleido-mastoid muscle in a patient sixteen years of age, forcibly corrected the distortion of wry-neck. This was followed by sudden stoppage of breathing necessitating artificial respiration, followed by death, due, in the opinion of the writer, to an interference of the circulation from the compression or stretching of elongated vessels. The writer recommends, in adults, the more gradual correction of the deformity.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SURGICAL SECTION, DENVER, JUNE 7, 8, 9 AND 10, 1898.

FIRST DAY. — AFTERNOON SESSION.

THE meeting was called to order by the Chairman of the Section, DR. W. L. RODMAN, of Louisville, Ky.

The Committee on the Senn Medal, appointed in 1897, reported the awarding of the medal to Dr. G. W. Crile of Cleveland, Ohio, for his paper entitled "Experimental Research into the Effects of Temporary Closing of the Carotid Arteries; Report of Case; Exhibition of a New Instrument," and it was decided that the paper should be read before the Section on Thursday afternoon.

INFLUENCE OF AGE, SEX AND RACE IN SURGICAL AFFECTIONS.

The CHAIRMAN then read an address on the above subject. He referred to the susceptibility of the negro race to certain diseases, particularly local tuberculosis of the glands, skin and bones, but stated that this susceptibility was less than three hundred years ago, although it has been proven that he is still obnoxious to neoplasms, keloids, tetanus, etc.

In commenting on cancer in the colored race, he referred to its great increase within the past fifty years as compared with the white races, and spoke on the relative frequency of cancer of the uterus in the colored race. Sarcoma is much more prevalent than carcinoma among the black, although carcinoma is becoming very frequent in the region of the rectum in these people. One very peculiar fact was reported, namely, the rarity of cancer of the penis in the negro in spite of the great frequency of phimosis.

As to the most common tumors occurring in childhood, sarcoma seems to lead, although cylindroma has been reported in a child of eleven years of age.

Keloid, the speaker believed to be much more common in the black, although more prevalent in the white than is generally supposed to be the case.

With regard to the liability of the sexes to benign tumors, he did not think that there was any noticeable disproportion.

Tuberculosis was stated to be largely on the increase among the negroes, being twice as common as in the white, and also among the Indian boys, due largely to the change from outdoor to indoor life.

Varicocele was believed to be almost unknown among the colored race, and a number of prominent surgeons were reported as being of the same opinion. Almost equally immuned is this race to varicose veins and hemorrhoids.

Tuberculosis of the prostate was reported as being very common among the colored race, while enlarged prostate, in the opinion of the author, as well as Drs. J. P. Bryson and H. H. Mudd of St. Louis, was a very rare occurrence. In explaining the cause for the foregoing statements concerning the rarity of varicocele in the negro, it was mentioned that among other causes for this might be included the facts that although the penis is much larger than in the white men, the testicles do not hang so low, the veins receive better mechanical support, and the negro leads a more lascivious life.

The wearing of corsets and sedentary habits were thought to explain the relative frequency of gall-stones and cholelithiasis in women compared with men, while white people are believed to suffer more frequently than the black from this condition. The better digestion, better teeth and less liability to pathological conditions of the liver were given as causes for the fact that gall-stones were very rarely found in the gall-bladder of the negro.

The greater tendency to arterial degeneration among males was quoted as the reason for the greater frequency of aneurism in males than in females, while the rice diet and habits of the people probably accounted for the rarity of this condition among the Chinese, particularly as compared with England, where it is very frequent. Speaking comparatively as between the races, it was shown that the negro suffered much more than the white from this condition.

In explaining the great mortality from tetanus among colored infants, the speaker dwelt upon the uncleanly habits of the people, and the small amount of attention given to the umbilical cord at birth. In accounting for the greater liability of males to this

[30] Inaugural Dissertation, Freiburg, 1896.
[31] Spasmodic Torticollis, American Journal of Medical Science, March, 1898.
[32] Wien. klin. Woch., 1896, No. 43.

disease, the increased risks to injuries of various kinds was mentioned, and as an explanation of its frequency among Jewish infants, the unscientific and inexperienced methods employed in performing circumcision were referred to.

As to ovarian tumors, while it was admitted that they could occur at any age and in all races, they were claimed to be uncommon before puberty and after eiguty, and even at these periods of life were almost unknown in the colored race, in the opinion of many observers, although the author did not concur in this view, but admitted that when present, they were frequently congenital.

Statistics obtained from many physicians, hospitals, etc., were quoted; but it was pointed out that much difficulty was experienced in making satisfactory comparisons between the races, on account of the fact that the records of hospitals and other places make no distinction between the black and mulattoes.

DR. A. D. BEVAN, of Chicago, read a paper entitled

SURGICAL ANATOMY OF THE BILE TRACTS.

In order to illustrate the important points referred to by the author, a number of diagrams were shown, particularly to emphasize the fact as stated by the author, that a mental picture of the anatomy of the parts and their relations to each other was always advisible for a surgeon. He referred to the fact that surgeons of the present day were not as good anatomists as in years gone by, although as pathologists they were vastly superior to the surgeons of old.

To thoroughly familiarize himself with the anatomy and relative positions of the bile tracts, the speaker performed no less than 40 dissections upon the cadaver, employing at various times four incisions. As none of them met with his approval, he has discarded them; and while in some cases the smallness of the incision was the principal drawback, he preferred not to enlarge them on account of the liability to hernia. The T-shaped incision was so difficult to suture and left the abdominal wall so weak, that he believed it one of the most objectionable of all incisions, and preferred to use one devised by himself, which he divided into two parts called the primary and the extended. The former is employed for exploratory and other similar operations, is shaped like the italic letter *S*, is three or four inches in length and passes along and through the outer border of the rectus muscle. To this incision, when necessary, may be added the secondary or extended portion, which may increase the length from one to three inches, care being exercised not to completely divide the entire thickness of the muscle along the upper portion of the extension. A sharp knife should always be used in making these incisions, and stress was laid upon the great accessibility of the gall-bladder and bile-duct when these incisions were employed. As they run almost entirely parallel with the nerve supply of the abdominal wall, a minimum amount of injury results to these nerves, while hernia is very improbable owing to the relation of the incision to the costal arch, although it should not be brought nearer to the arch than three-quarters of an inch. The essayist recommended silkworm sutures passed through the entire abdominal wall, and the approximation of the skin with a continuous horsehair suture.

Illustrations of the various parts taken from different points of view were recommended for use in the instruction of students, as well as guides to surgeons, and a large number of charts illustrating the importance of this point were shown by the author.

DR. JOHN B. HAMILTON, of Chicago, described in detail a method employed by himself for the purpose of locating the gall-bladder, and stated that he had performed the operation on 25 cadavers in the last two years to determine its feasibility. The method, as described by the speaker, consisted of three lines, the first extending from the ensiform appendix to the superior spine of the ilium, the second, from the umbilicus to the tenth costal junction, and the third transversely to these, the incision being made from one-half to three-quarters of an inch from the intersection of these lines. Atrophy and hypertrophy of the liver were mentioned as factors somewhat disturbing the relations of the gall-bladder; and, as evidence of its vascularity, the speaker referred to two cases of fatal hemorrhage. Commenting on the twist in the cystic duct, sometimes referred to as the S-shaped position, the doctor believed that this was often a cause of obstruction, and thought that this condition might often be relieved, as pointed out by Fenger, by straightening the duct.

DR. HARRIS, of Chicago, reported having made a number of dissections in the region of the gall-bladder in order to determine the point referred to in the paper, and heartily agreed with the author of the paper as to the advantages claimed for this method. He also thoroughly agreed as to the excellent results obtained by the employment of the incision mentioned by Dr. Bevan, and cautioned surgeons against gaping of the extended lower end of the incision downward and outward by the employment of accurate suturing.

DR. J. L. LORD, of Omaha, Neb., read a paper entitled

INTESTINAL OBSTRUCTION FROM GALL-STONES, WITH REPORT OF A CASE.

After referring at some length to the history of the case and the medical treatment, the question of operation was considered, from which the patient recovered without difficulty. As a result of the operation, a specimen was removed which was sharply conical near its lesser extremity, with a small irregular elevation on one side, and this was believed to have given way on the third day after the operation, producing a small perforation and symptoms of peritonitis, which, however, disappeared in the course of two days. Section of this specimen showed it to have a gall-stone for a nucleus, and a partial analysis proved the existence of biliary sediment and fat in large proportions. It is believed that this specimen found its way into the bowel by ulceration, as there was entire absence of history of gall-stone, colic or jaundice.

With regard to the frequency of intestinal obstruction, the speaker claimed that 80 per cent. of the cases occur in women, the great majority in persons well advanced in years, and the manner in which obstruction takes place is usually mechanical from the interrupted passage of a large stone.

Owing to the fact that gall-stones may exist for years without symptons or evidence of their presence, the author did not feel that any reflection could be cast upon the surgeon if he failed to make a diagnosis previous to operation. As to the importance of tympanites in these cases, it was claimed that the nearer the stone was to its origin the less prominent was this

symptom. With regard to the possibilities of spontaneous relief by the passage of the stone, from 30 to 50 per cent. was mentioned as the probable number relieved in this way, while the remaining 50 to 80 per cent. died if unrelieved.

Great stress was laid upon the importance of early operation in the cases, which it was argued would reduce the mortality down to a point which would be a credit to the surgeon, and emphasis was laid upon lessening the number of last resort operations. Under ordinary circumstances fecal vomiting was referred to as the signal for operative interference in gall-stone or any other form of obstruction where other adequate measures had been tried without relief.

The author concluded his paper by referring to the great value of lavage of the stomach in the medical and surgical treatment of intestinal obstruction, and stated that it was his usual practice to precede all operations for the relief of this condition by this procedure.

DR. P. S. CONNER, of Cincinnati, read a paper entitled

REMOVAL OF THE STOMACH.

He stated that he had performed this operation fifteen years ago, the patient dying on the table, but he was glad to observe a recent announcement that it had been performed successfully, as he saw no physiological, anatomical or surgical reason why, in cases where the stomach was functionally extinct, as in general infiltration of the gastric walls, it should not be performed as well as any other operation. The great objection, however, to operating in these cases, was mentioned as being due to the fact that the patient was ordinarily too far gone to recover under any circumstances; but he did not think that the inability to preserve the gastric circulation should be mentioned as a contraindication to the operation. If the stomach had practically ceased to exist as far as its usefulness was concerned, and was acting simply as a receiving organ, he saw no reason why it should not be removed, as the lower end of the esophagus could be readily attached to the duodenum or jejunum with the least amount of tension, and with preservation of the intestinal function, it being perfectly possible to dispense entirely with the gastric function.

DR. D. W. GRAHAM, of Chicago, asked if Dr. Connor apprehended that there would be much difficulty in securing the end of the esophagus where the whole stomach had been removed, as he believed this would be an anatomical impossibility, unless a small portion of the cardiac end was saved.

DR. KEEFER, of St. Louis, referred to the connection between the floor of the fourth ventricle and the liver through the pneumogastric nerve, and did not think it possible to completely remove the stomach, severing the lesser momentum, without cutting the fibres of this nerve going to the liver.

DR. HARRIS, of Chicago, reported having removed the entire stomach for carcinoma, in May, 1897, from a man seventy-two years of age, in whom no difficulty was experienced in securing the esophagus to the duodenum, and believed that trouble in this direction depended largely upon the amount of obstruction which was present previous to the operation. He commented on the extreme mobility of the duodenum in cases of carcinoma of the pylorus, permitting the mass to be moved from one side to the other, so that the duodenum could readily be attached to the esophagus. He thought that the right pneumogastric nerve passed into the liver so high up that there was no necessity of interfering with it.

DR. CONNOR considered that if any difficulty arose in attaching the esophagus to the duodenum, it could readily be attached to the jejunum. The case operated upon a year ago without any bad effects he believed to be a fair test as to the lack of danger from injury to the pneumogastric nerve. While admitting that the operation would necessarily have a most limited field, he believed there were cases where it was perfectly right and proper to perform it.

DR. W. J. MAYO, of Rochester, Minn., read a paper entitled

THE DIAGNOSIS AND SURGICAL TREATMENT OF MALIGNANT OBSTRUCTION OF THE PYLORUS, WITH REPORT OF THREE PYLORECTOMIES, AND FOUR GASTROENTEROSTOMIES.

The first part of this paper was devoted to extracts from the writings of various men as to the etiology of carcinoma, and in taking up the question of diagnosis of obstruction of the pylorus, and the resulting dilatation of the stomach; this was stated to be not a difficult matter, although it was admitted to be very difficult to make a differential diagnosis between the malignant and non-malignant character of the obstruction without incision of the abdominal wall. In this connection the history and the results of inspection of the patient as well as the chemical examination of the gastric contents were claimed to be very important factors, while but little benefit was experienced in the use of the x-ray. In seven cases of malignant disease, nothing beyond an exploratory incision was made, but in two of the cases great improvement followed. The speaker divided the treatment of obstructive cancer of the pylorus into the non-operative and the operative, and included among other remedies for the non-operative method, the use of the routine application of the stomach-tube, and the internal administration of bismuth, salol, methyl-blue with three grains of powdered nutmeg after eating, and various gastro-intestinal antiseptics, as well as a carefully regulated diet. In taking up the operative procedures, the two entitled to the most serious consideration were mentioned, and pylorectomy, a radical operation based on the hope of a cure, and gastroenterostomy for palliative purposes. The former, it was claimed, had been very discouraging, owing to the great mortality, but improvements in technique, it was believed, would remove much of this objection. One great cause of the mortality was referred to as imperfect union and the resulting leakage at the suture angle.

The author then referred to the operation which he has employed on three occasions successfully, the steps of which he divided into, first, a median incision above the umbilicus; second, double ligation and division of the necessary amount of gastrohepatic momentum; third, the isolation of the diseased part by a piece of gauze drawn under it, caught on either side by a pair of forceps separating it from the healthy stomach; fourth, the slipping to the right of the end of the stomach and the suturing to each other of the ends of the tied omenta; and, fifth, clean amputation at a healthy point of the duodenum, with the insertion of the Murphy button at least three inches from the suture line. In an appendix to the paper the detailed

history of the three cases thus operated upon was given.

Gastroenterostomy was referred to as a much more popular procedure than pylorectomy, and two methods of performing the former operation were mentioned, the suture operation and that of the Murphy button.

The author believed that too much importance had been attached to the question as to whether or not the bowel should be fixed to the anterior or posterior wall of the stomach, and stated that the results were about the same in either case.

The paper concluded with the request that greater stress should be laid upon the importance of careful preparation of a case for operation upon the stomach and great care on the part of the anesthetizer.

DR. J. B. MURPHY, of Chicago, congratulated the author of the paper upon the results obtained, and entirely agreed with him as to the importance of early exploratory incision in these cases for the exposure and examination of the pylorus, a procedure involving a risk of less than one per cent. With regard to performing gastroenterostomy, he regretted that usually before the surgeon was called upon to do this operation the patient had passed beyond the stage where the preservation of his life was possible, just as hysterectomy is often useless in cases of carcinoma of the cervix.

DR. MCARTHUR, of Chicago, suggested that a passage might be provided prior to the removal of pylorus, instead of the opposite, as is usually the case, believing that the patient would better stand the more serious operation later.

DR. JOHN B. HAMILTON, of Chicago, referred to a case operated upon by himself three years ago where regurgitant vomiting was present, and great emaciation as well as inability to retain anything on the stomach. Since the operation the patient has gained more than fifty pounds, nothing more having been done than the dilatation of the pylorus.

DR. WILLIAM F. METCALF, of Detroit, read a paper entitled

INTESTINAL ANASTOMOSIS BY A NEW METHOD.

The author stated that in view of the fact that various devices were sometimes necessary in intestinal anastomoses, he considered they should possess the following qualifications: first, they should be rigid as to hold the parts firmly in their position; second, they should pass quickly away, so soon as their function was performed; and, thirdly, they should be easy of introduction. The device conceived by the speaker was made of sugar in the form of cylinders of hard candy, and specimens with the cylinders *in situ* as well as diagrams were exhibited, together with a detailed explanation of the method of use. The advantages claimed for the method were these: first, the quick disappearance of the approximator; second, the ability to accurately adjust the mesentery; third, the ease and rapidity with which union could be effected; fourth, the cheapness of manufacture; fifth the tendency to prevent accumulation of fluid and formation of abscess beneath the mucous coat; and, sixth, the small amount of surgical ability needed to perform the operation.

DR. H. H. GRANT, of Louisville, Ky., spoke against the employment of devices in intestinal anastomoses, and believed that the necessity for their use was due to a lack of skill on the part of the operator. He admitted that in certain cases the Murphy button was useful, but on the whole he believed these devices took time and added to the risk of hemorrhage.

DR. METCALF believed that occasionally time was saved by the employment of mechanical devices, and the results were more accurate as well as the subsequent contraction less.

DR. ERNEST LAPLACE, of Philadelphia, read a paper entitled

A NEW METHOD OF PERFORMING INTESTINAL ANASTOMOSIS, AND ENTERORRHAPHY.

The author described in detail the forceps devised for the performance of this operation, and stated that the advantages were, first, rapidity and accuracy of suturing without leaving any foreign substance within the gut; second, the easy adjustment of the forceps to the openings; and third, the various sizes in which the forceps could be made.

He then described the working of the instrument in performing lateral anastomosis, end-to-end anastomosis, and invagination, and showed the instrument together with diagrams.

DR. MACRAE, of Atlanta, Ga., believed that the instrument had a great field for usefulness, and would facilitate these anastomoses considerably.

DR. LAPLACE claimed that it was possible to perform the operation with the instrument in three or four times less time than without it, as well as increase the accuracy of the work, and prevent undue manipulation of the gut during the process of suturing.

DR. B. MERRILL RICKETTS, of Cincinnati, O., read a paper entitled

ANEURISM OF THE AORTIC ARCH; SURGICAL TREATMENT BY LIGATION OF THE RIGHT CAROTID AND SUBCLAVIAN ARTERIES, WITH REPORT OF A CASE.

He believed that the successful treatment of aneurism of the arch of the aorta at the present time was practically nil in ways other than surgical. He referred to an operation devised by Christopher Heath in 1865, and to nine additional operations since that time, and recommended recumbency and diet as well as baths and gradual exercise in all cases of aneurism, combined in certain cases with mercury and the iodides, both before and after the ligature. He also commented upon the method of the introduction of wire into the sac both with and without galvanism and considered it the most rational method of dealing with many cases. Reference was made to a case of ligation which died three months later from a rupture of the right auricle, the patient having gained twelve pounds in weight since the operation.

The following classification was suggested: (1) those in which the right subclavian and common carotid should be ligated; (2) those in which wire should be introduced; (3) those in which nothing should be done.

The author closed his paper by giving in detail a case operated upon by himself by ligature, in which complete recovery followed, and submitted a number of conclusions concerning the various operations to be done in different cases.

(To be continued.)

THE Maryland State Legislature has appropriated $400,000 to the Johns Hopkins University to tide it over its financial straits, due to the loss sustained in the default of the Baltimore and Ohio Railroad.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. HUMFORD, M.D., SECRETARY.

REGULAR meeting, Monday, April 4, 1898, the President, DR. R. H. FITZ, in the chair.

DR. MORTON PRINCE read a paper entitled

HYSTERICAL NEURASTHENIA (PSEUDO-NEURASTHENIA, HYSTERIA WITHOUT STIGMATA).

DR. F. G. BALCH read a paper on

PAPILLOMATOUS URETHRITIS.[1]

DR. F. M. BRIGGS: I have been very much interested in this case of Dr. Balch's because I had a case of the kind in 1887, and it took me nearly a year to make the diagnosis. But it must be noted that at that time the endoscope was a novelty, and the general custom was to make the diagnosis of urethral troubles from the history, the symptoms, the sound and the olive-pointed bougie. The patient consulted me in August of the above year, giving a history of an acute attack of gonorrhea some eight years before, from which he supposed he recovered, but which he thought left his urethra in an irritable condition. For the past three years he had noticed that every coitus was followed by a sharp urethritis, which he supposed to be gonorrhea. Injections of permanganate of potash (1 to 2,000) always checked it, but the next time he had intercourse it occurred again. I found no deep urethral or prostatic trouble, and upon examination with Otis's olive-pointed bougies found, upon reaching No. 30, that the sensation was precisely that of stricture. I made a diagnosis of stricture of large calibre, and advised dilatation. He came a few times and then disappeared, returning again in November to resume treatment. He then went through a regular course, and I stretched him from No. 30 up to 40. The patient declined to go on beyond No. 40, and disappeared. I advised him carefully about his habits; but ten days later he reported again as badly off as ever, having had intercourse two days previously.

I saw no more of him until the following July, when he came on account of a new symptom, namely, the discharge was streaked with fresh blood. I then used an endoscope, and found the urethra studded with warty growths for some four and a half inches. I had never heard of such a condition before, and thought that I had struck the first one on record. But upon looking up the literature I found that Oberländer, of Dresden, had described the condition very thoroughly, two years previously. The treatment which he advised was to make two small cotton tampons, which were introduced one after the other through an endoscope, and then by a twisting motion the growths were pulled off. I had some No. 34 endoscopes made, after the Klotz pattern, and attempted to operate by Oberländer's method (*tampon ecrasement*), but found that in this case, where these tampons were large enough to catch and pull off the growths, that they were so large that they could not be moved, and I was afraid of tearing the mucous membrane. I then decided to use a curette, which I did, and removed a large number of growths, working from before backwards. I was very much surprised at the trifling amount of bleeding. It was of no importance. If this treatment is adopted, the one point to be noted is that the penis should be drawn out to its extreme limit before scraping. I introduced the endoscope to a seat of the growths (using a head mirror to localize them), passed the curette to this seat, then partially withdrew the endoscope and pressing my hand firmly over it I drew the penis out as far as possible. I scraped rapidly in all directions. The importance of stretching the penis out is to prevent loose folds of the urethra from being caught between the edge of the curette and the edge of the endoscope, thus wounding it, which could easily occur.

I operated in my office, using cocaine as an anesthetic. I did not see the patient again for a week, when he reported that he had been but little troubled by the operation. His urethra has been sore and micturition painful. There was more or less bleeding for twenty-four hours after the operation. He had a very profuse discharge, which was quickly checked by permanganate injections.

The cure was complete, as he has been entirely free from his old trouble from that day to this. The question was raised at the time as to the danger of subsequent stricture due to the use of the curette. Eight years after the operation I passed a No. 38 sound with great ease.

I have been very much surprised at the total lack of attention paid to this condition by the writers of surgery, and especially of genito-urinary surgery. The condition is undoubtedly rare, but it does occur, and when it occurs it is very clear, very distinct and can be cured. It should certainly be thought of by every one who treats urethral cases, for it is always possible that papillomatous growths may be the real cause of an otherwise obscure urethritis.

DR. ALLEN: I have never seen a case since Dr. Briggs's case, although in the ten years that have elapsed since then I have used the endoscope a great deal, and that leads me to agree with Dr. Balch and Dr. Briggs that it is certainly not a common affection. A thing that struck me very much in Dr. Briggs's case was the very friable structure of these growths. They were softer and more gelatinous, it seemed to me, than the ordinary venereal warts that occur under the prepuce. The view through the endoscope was very striking indeed; the whole anterior urethra was completely filled with the growths.

DR. BALCH: I think that Brown's wire endoscope used as a cutting instrument gives the operator a chance to see at the same time that he is cutting the growths off. With the curette you obstruct your view considerably.

DR. BRIGGS: You simply use the endoscope to locate the curette and draw the endoscope partially out with the curette left in, and curette to that point, then locate again, and keep on going down from the anterior to the posterior part. I think you will find, if you try it as I described, that the round endoscope is better than Brown's.

[1] See page 5 of the Journal.

"A LURID INDUSTRY."—As such is characterized by the Rome correspondent of the *Lancet* the practice which is said to prevail in Naples, of buying the dirty charpie dressings from the hospitals and selling them after a prefunctory cleansing for use by tailors and upholsterers in padding clothes and furniture. The noble trade of selling cigar stumps pales into insignificance in the light of this "lurid" traffic.

AMERICAN PEDIATRIC SOCIETY.

COLLECTIVE INVESTIGATION ON INFANTILE SCURVY IN NORTH AMERICA.[1]

AT the Tenth Annual Meeting of the American Pediatric Society, Cincinnati, June 2, 1898, a report on the above subject was presented by a committee consisting of Drs. J. P. Crozier Griffith, Philadelphia; Charles G. Jennings, of Detroit, and John Lovett Morse, of Boston. The following is an abstract of the discussion thereon:

DR. CHRISTOPHER: Does this report contain any definite conclusions as to the nature of scurvy? I heard Dr. Griffith give part of one. If it does, it seems to me we should strike them out, for we certainly cannot agree upon them. I will move, then, that all parts of the report giving conclusions be stricken out and all parts relating to the collection of data be retained and as such be published. (Seconded). Now, does it contain any conclusions? It certainly seems to me bad policy for this Society ever to adopt conclusions of any pathological matter. Even in so elaborately established a report as that of the Antitoxin Committee, it is bad policy, and it looks like establishing scientific truths by legislation. The truths are valuable and should be published as far as possible.

DR. GRIFFITH: I have had several letters, one just before I came from home, from men who wanted to know the conclusions of the committee. If this is to be of any value it must have some conclusions, because nobody except those deeply interested in scurvy will read through the report and the tables. We are not to determine as a committee or a Society what produces scurvy, but we are analyzing reports of physicians. If 300 physicians say in so many cases these children were improperly fed and one physician says there was no improper food, the conclusion is before you. We do not say diet is the cause, but we say from the reports of these physicians, diet seemed to be the cause. As in the long German articles, the conclusions are placed at the end. We cannot get out of the fact that the conclusions are there. I think we ought to sum up here and there the facts that the report indicates.

DR. NORTHRUP: Why should we gather all these statistics and then put them out in a mass? It is like tabulating the work of a hospital without commenting upon what they have done. I would be very sorry to see this work set aside. It would be like a record that appeared not long ago of 500 cases of rheumatism without any comments.

DR. MORSE: I feel that the conclusions that the committee has drawn up are entirely justified. If anything, they are much milder than the figures seem to indicate. But any further conclusions would call for some expression of opinion from the committee that must be based on their personal experience and it seemed best to leave that out. I feel very strongly that the paper should not be published without the conclusions.

DR. JENNINGS: I sincerely regret that my opportunity for examining the report has not been sufficient to express an opinion upon it. From the examination I made I think that the conclusions of the committee are fully justified. Still, it would have pleased me better to have been present at the full meeting of the committee to hear the various expressions and perhaps my individual opinions might have been modified in that way. But as they stand now, the conclusions very nearly express my conclusions of the results of the investigation.

DR. BOOKER: I went over the conclusions of the committee. There were some things I did not approve of, but we came by various modifications to something of an agreement and I am satisfied to stand by that agreement. The time we had for reviewing the report was very short, but I am willing to stand by the conclusions we came to.

DR. CAILLÉ: I think that those conclusions are entirely safe and I do not personally object to them, but I would like to make a very short minority report based upon the cases I have collected.

MINORITY REPORT BY DR. CAILLÉ.

(1) From a study of this report and from due consideration of other known facts, scurvy appears to be a chronic ptomaine poisoning due to the absorption of toxins.

(2) It follows the prolonged use of improper food and abnormal intestinal fermentation is a predisposing factor.

(3) Sterilizing, Pasteurizing or cooking of milk food is not *per se* responsible for the scurvy condition.

(4) A change of food and the administration of fruit juice and treatment of any underlying cause is the rational therapeutic procedure in scurvy.

DR. FORCHHEIMER: Would it not be better to have the committee meet again and try to come to some conclusion, so that the report can be received as a whole? I move that the report be referred back to the committee with instructions to report to-morrow.

Dr. Christopher withdrew his motion and the motion made by Dr. Forchheimer was carried.

On the following day Dr. Griffith presented the revised report.

Preceding this DR. ROWLAND G. FREEMAN opened a discussion on the subject:

SHALL ALL MILK USED FOR INFANT FEEDING BE HEATED FOR THE PURPOSE OF KILLING GERMS? IF SO, AT WHAT TEMPERATURE, AND HOW LONG SHALL THIS TEMPERATURE BE CONTINUED.

General discussion upon the report and the paper of Dr. Freeman then followed.

DR. BOOKER: I have not had an opportunity to study the report required for a subject of so great importance to form an opinion upon it, and I beg to be excused from subscribing to it.

DR. BUCKINGHAM: It appears to me that this report in all its bearings is as important a matter as can come before the Society at any time. It is important it should be settled right. It will be a horrible thing to have it settled wrong. It seems to me that having heard the evidence offered to us and the reports made to us to-day, that there is just this to be said: if the evidence is accepted there is only one conclusion that can possibly be drawn and that is, the sterilization of milk has to do with the production of scurvy. When Dr. Caillé presented his minority report it seemed to me that what he did was to proffer the evidence that has come from his personal knowledge and the knowledge of his personal friends rather than the observations of people that he knows very little about. There are just two conclusions that can be

See page 3 of the Journal.

drawn: Either sterilization of milk produces scurvy or collective investigations are not a safe way of getting information. For my part I am willing to accept either or both, and do accept both conclusions. But I hope very much we shall not insist upon the public accepting a lot of investigations until we are all united in accepting them. For my own part, I believe sterilization produces scurvy and the only reason it does not do it oftener is because of the imperfect way milk is sterilized. A great deal of milk masquerades under the name sterilized milk that is not sterilized.

DR. BOOKER: When the sterilization of milk was introduced it was heralded by the medical profession as one of the most important advances in medicine. After ten years' experience in this method I am still of the same opinion, that it is one of the greatest advances that has been made in infant feeding. It was not claimed in the beginning that sterilization improved the digestion of milk. That part of the question has attracted so much attention that we have lost sight of the real object of sterilizing milk, that is, the prevention of sickness. The most important diseases which we have to deal with among infants are the digestive disorders in the summer time. The sterilization of the milk offers more advantages in checking or preventing those diseases than any other method which has yet been offered. Now has sterilization of milk so far done anything towards diminishing the summer diarrheas of infants? We have not had reliable statistics to justify us in coming to conclusions. In the first place, sterilized milk has been used heretofore largely among the well-to-do, who are able to give the infants advantages which may of themselves be sufficient to avoid the disease. Again, the methods used for the sterilization of milk have not been sufficient. I believe that disease has been diminished by sterilization of milk and I believe the infantile mortality has been markedly reduced in New York, if I understood the President's address correctly, in the last few years since the sterilization of milk has been largely used there. Whatever the results have been, there is brighter outlook in the future if we can continue along this line. There is a great deal to be done in educating people in the handling of milk. If we can continue educating the people in this way, I believe a great deal will be done towards preventing disease in infants. It is possible that sterilization of milk may injure its nutritive properties to a slight extent. The chemical combinations in milk are held very loosely, and heating may be sufficient to destroy these relations. Heating may also coagulate some of the valuable proteids and to this extent the nutritive properties of milk may be somewhat injured. But the injury done by this is far outweighed by the greater advantage offered in preventing disease. As to the temperature at which milk should be sterilized, much depends upon the object of the sterilization and who is doing the sterilizing.

The ordinary methods of sterilizing milk do not sterilize the milk. They do not destroy certain harmful germs, germs which may not be harmful to the child if introduced into its body, but which are injurious to the milk. These germs are destroyed at a low temperature, such as the bacillus lactis erogenes. Where the hope is only to destroy these germs, and it is understood that this is the object of the sterilization, the low temperature of Pasteurization would be preferable, provided the Pasteurization were conducted by a person who understood it or had the valuable apparatus presented by Dr. Freeman. Unfortunately, this apparatus is expensive and cannot be introduced where it is most needed. If we turn the sterilization over to the family I believe it is better to resort to sterilization than Pasteurization. My own experience has been larger with sterilization than with Pasteurization, and I do not believe there is a very great difference in the disturbance of the digestive qualities of the milk and the nutritive qualities by the one over the other. If the milk is to be kept for any time after its sterilization before it is used, as for journeys, it should be thoroughly sterilized, and that means a sterilization of three to six consecutive days at a high temperature for very many hours.

I particularly want to put myself on record that I do not believe the sterilization of milk causes the disturbances that have been claimed for it. I believe that in all the cases if we could get to the true knowledge of the previous management of the milk we would find it is that which has caused the trouble and not the manner of heating. It may be that certain idiosyncracies of the baby may be of such a nature that the sterilization of the milk will cause injury to the baby, but that may occur with any milk. When we analyze milk and find it normal as far as we can judge from the analysis, it may disagree with the infant. The sterilization, I believe, has no other influence in producing disease. I do not believe it produces scurvy. I believe that is due to the handling of the milk before and afterwards. Very few of us who have sent in reports have made examinations of the handling of the milk. I did not, and I believe very few have done so. That is one reason I am not willing to subscribe to the report. If we could sift all these cases I believe we would find some condition in the milk, outside of sterilization, as we do in Mellin's food, which is mentioned in a number of cases under scurvy. It is very seldom Mellin's food is used as a food; it is not intended as a food but is more intended as a sugar for sweetening the milk. It is a valuable addition in some cases when it is used in that way. In all the answers I have received very few have said that they used Mellin's food alone; it is largely used with milk. If we could find out the true condition of the food before the scurvy was produced we would not find that the food bears such a relation to the disease. The whole subject is too complex and too little understood.

DR. WINTERS: Two cases of scurvy which I have seen have a good deal of bearing, I think, on the discussion. One was a child nine months old that was brought to the dispensary too late to be reported to this committee. It was the fifth child, the other four in the family being absolutely healthy. The family history was excellent. This child had extensive changes under the periosteum which extended from the knee down to the ankle. It had the well-known blue line beneath the two front teeth. The child had been fed exclusively for six months on sterilized milk. The other case was a baby five months old, brought to my office in consultation. The father and mother were healthy. This child was fed on Walker-Gordon milk and had never had anything else from its birth. That milk had been under sterilization for forty minutes. Here we have two typical cases of scurvy in which the family history has no bearing, one in which there has been four healthy children, both fed on proper food, and the scurvy, it seems to me, was due to the way in which the food was treated. The food in both cases was

proper in composition and it had never caused the slightest digestion disturbances. In the case of the baby fed upon Walker-Gordon milk, the food was continued, but it was directed that it should be heated to 150° for ten minutes. The baby recovered. I have seen in all some two or three dozen cases of scurvy. The one case I spoke of was the only one that I have seen in dispensary practice, although I see thousands of children every year. My own impressions are that if the methods of feeding go on until we gradually meet the tenement people, we will also find scurvy in tenement practice. Every case of scurvy, except this one, I have seen in consultation. I have never used anything but a modification of food except in two cases, one a case which I saw with Dr. Reed, where beef-juice and fruit-juice were used, but the case was fatal.

DR. MORSE: It seems to me that in approaching a collective investigation of any subject, the first thing necessary is to disabuse our minds of any previous ideas we may have held or failed to hold. Then we should analyze our figures and study the result which they show, and we should not modify our result either because it does not agree with our previous points or because it seems to involve some issues which it is not our providence to consider.

In regard to the sterilization of milk it seems to me that we must feel that the cooking of milk to any extent must modify the albuminoids, proteid substances, and have some effect on the emulsion of fat. We must also admit that bacteria in milk do harm and for that reason we should heat milk to a certain extent. We have to meet two dangers, and in each individual case we must settle it according to our best judgment. One danger in connection with sterilized milk is that the public has forgotten that there is anything else in connection with baby's food except cooking it.

DR. JACOBI: I can be very brief, inasmuch as I might have said something similar to what Dr. Morse has said just now. I arise to make a motion that the report and the minority report, and the remarks of Dr. Booker and this whole discussion be printed as it stands. We owe that to those who have done the work and we owe it to ourselves. We should not expect that we can solve the question forever. We must not expect that any report nor anything that any of us say must be accepted by the whole world. It is only a contribution to what has been known before. It would be a pity if the material which has been worked up should be lost. Whoever has spoken last upon this subject feels then that the subject is settled and that there is nothing further to be said about it. That has been so from the beginning of time and it is so now. What we say here and do here and our valuable report should be published, and the medical public who are going to read it will have something new at all events, either a confirmation of their original views or the opposite.

The Chair decided that the motion of Dr. Jacobi was not necessary, since the publication would be made according to the laws of the Society.

DR. ADAMS: I am very much of the opinion expressed by Dr. Morse. We have a right to express our individual views. The investigation was entered into in all honesty and all deductions should be drawn from the figures presented by the public at large just as in the investigation of antitoxin. We have a practice in the medical press of giving the public the benefit of individual opinions and this should be an independent investigation and not clouded by individual opinions. I have made observations in sterilizing milk, and I have my own opinions about scurvy, but I should be governed very much by the valuable report of this committee.

Now as to the discussion of milk. I, with very many members of this Society, took up very early the high sterilization of milk, and was very soon convinced of its impracticability in the vast majority of cases. Then I resorted to the low sterilization. I have tried both methods in the most adverse circumstances, that is, in a hot city where the temperature is often 80° for days at a time. I have done this under the most favorable circumstances with a good corps of good assistants, and I have found one method has yielded entirely satisfactory results. While we have cardinal principles to govern us in feeding infants, we must study each individual case and adapt the methods accordingly. I have sterilized the milk in the Foundling Hospital and in the Children's Hospital, and then I Pasteurized the milk in both of them, and I got bad results in both. Then I Pasteurized at 150° in both and have secured the best milk possible, and in this way I have had the best results. In the past two months I have not had any deaths among sixty children. In private practice, in those cases in which I could get them upon a supply of milk from a dairy under the medical supervision of the Society of the District of Columbia, I did not resort to either method but to my own modification of the milk by siphoning off the cream or the upper part of the milk. In this way I have not since January seen a case of gastro-enteric disease in my own practice. So I think our own experience should guide us rather than that we should lay down that all milk should be sterilized or all Pasteurized.

DR. CAILLÉ: I wish to say one word in Dr. Freeman's favor. I think we are getting a little hysterical in the matter of temperature and we will settle down to a solid basis after a while. The antiseptic principle applied to infant food is one of the greatest advances in the last half of this century. If the opinion should go out from this Society that sterilization is bad practice, it would be a large retrograde step. It would be all right if it were possible to have absolutely clean milk from the time it is received until it is consumed, but since this is impossible, I prefer the sterilizing process rather than Pasteurization, because Pasteurization is a double process, a heating and a cooling process, and is a complicated thing for the common people to do. For that reason I prefer the temperature of boiling water. In reply to what Dr. Buckingham has said I will only say that my conclusions in the scurvy discussion are based upon the study of all the 370 odd cases, and Dr. Buckingham's conclusions are not based upon those cases. He has simply heard the report read and has not studied it as I have. Therefore, I think he is the bolder man of the two in formulating his conclusions.

DR. JENNINGS: I have nothing further to add. Dr. Morse expressed my views even better than I did, and I stand by that expression.

DR. GRIFFITH: I want to say that Dr. Morse has expressed my views. We are disposed to reflect upon the observers we do not know and say that we do not know anything about them, we do not know whether their milk was properly prepared, etc. I have read through every report sent me, with the exception of the few last ones, which included principally Dr. Holt's

batch which I thought it hardly worth while to review. You will be surprised to hear with what care those cases are reported by men we do not know. We say here "sterilization"; they say "sterilized at 212° for so long." It was impossible in the report to make all these classifications. At the same time the committee has taken particular pains not to vouch for the statements made. We do not know how many are accurate, of course, and so we only took the figures received, added them up and gave you the results. That only expresses the tabulation of these cases. In regard to Dr. Freeman's paper, I would like to express my own custom and belief about sterilization and Pasteurization of milk. I do not believe that sterilization does the harm usually attributed to it. It has been the custom among many people for a long time to so-called scald the milk, which raised it to near the temperature of boiling water. I think we do find comparatively little harm from this. At the same time we should get as near as possible the mother's milk. The sterilized or Pasteurized milk is simply a lesser evil. Any condition of this kind is an evil, and the only question is whether the evil of omitting it is not greater than the evil of doing it. Certainly, in my mind it is better to boil the milk thoroughly and long, if necessary, to insure clean milk. If you cannot do that I would prefer Pasteurization, or better than that, raw milk.

DR. HOLT: Most of us believe that at times Pasteurization of the milk is absolutely necessary, especially among certain people at certain times; but here is a thing from the report that may be dangerous and let us admit that. I have seen cases precisely like those reported in which there seemed to be no question about the preparation of the food, and the change from boiled milk or milk which was raw was the only step toward recovery. In my early cases I gave no fruit juice but only changed the food. It seems to me there are many things done in private practice that cannot be done outside. But that there is danger in the prolonged use of sterilized milk, it seems to me, is something we cannot escape if we believe these men have told the truth. It is a thing that will occur at times, and when a baby gets sore gums and sore legs we will know what is wrong.

DR. BOOKER: I would like to say that I believe in sterilization of the milk as a preventive measure and not as a food for the whole year. The proper time for using it is from June to October. In the cooler seasons, when we have tolerably pure milk, the raw milk is the best.

DR. FREEMAN: Dr. Booker referred to the difficulty of Pasteurizing in poor practice where you cannot have the proper apparatus. It is perfectly practicable to Pasteurize at 80° C. without any apparatus at all, if we will exert a little care, the milk being put on the stove and watched until a film forms on it. That is not true of diluted milk but of pure milk. That requires about fifteen or twenty minutes as a rule. It gives you some error, perhaps, in the way of over-heating rather than under-heating. In regard to Dr. Caillé's remark that one of the disadvantages is that you have to keep all milk cool afterwards, I think that is not true. In sterilization, where pressure was used and the sterilization continued about twenty minutes, we found a growth of bacteria within a day.

On motion, the majority report was adopted by a vote of 18 to 1.

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ON THE MULTIPLICATION OF PROFESSORS.

IN a recent article in the *Harvard Graduates' Magazine*, Dr. Thomas Dwight, Professor of Anatomy in the Harvard Medical School, discusses tersely, but very decidedly, the question of the increase in the number of professors in the university at large. His general position is unequivocal. He is flatly opposed to the tendency toward expansion of the number of professorships, through the subterfuge of such titles, for example, as associate professor; he believes firmly that each department must have but one head, and that it is as absurd for such an office to have two incumbents as it is impossible for a regiment to have two commanders.

Dr. Dwight states that in ten years in Harvard University the professors have increased at the rate of 32 per cent. and the assistant professors at the rate of 65 per cent., and that many of the latter will soon expect promotion. Owing to the large number of assistant professors and their expectation of promotion, Dr. Dwight sees a certain menace to the university. He believes in dropping an assistant professor when the term of his appointment has expired, if greater merit is to be found elsewhere, but if retained for a second five years, what is to happen at the end of that time? If not dropped, he must be promoted; such at least is the unwritten law. There are three courses, all of which Dr. Dwight looks upon askance, other than dismissal. First, the subject taught may be divided, a principle which, with few exceptions, has already been overdone. Secondly, in Dr. Dwight's words, "When the division can no longer be made properly, it may be made improperly by tacking some more or less frivolous or delusive addition on to the title." This, no doubt, is directed at the prefix "clinical." In the third place, an associate professor may be appointed, "perhaps more honest but probably more disadvantageous." The two latter methods he regards as unjust both to the university and to the head of the department concerned.

What then, is to be done? Evidently here is a real quandary and one which must sooner or later face every progressive institution of learning. Dr. Dwight thinks that, as a rule, the fear is unfounded, that good men are unwilling to remain in a subordinate position for a long period of time; he also thinks that their places may usually be filled by even better men, and that their departure is in no way an unmitigated evil to the parent university. But should, on the other hand, an associate professor be appointed, a difficulty comes when the professor retires, or so at least Dr. Dwight thinks, for then the associate is not to be got rid of, and the assumption apparently is that he must be an inferior man.

The whole article is full of excellent suggestions and should have a salutary influence; it is clearly written from the standpoint of the professor and represents admirably his side, but only his side of the question. There can be no possible doubt, speaking generally, that one of the most pernicious customs in this country is the hopeless multiplication of titles in our educational institutions and particularly in our medical schools. Evidently the places are made for the men and not the men for the places. Within a few days, in conversation, a physician from the West, himself a professor, said that he should prefer a position in the department of "Theory and Practice," but since there were already six professors in that department he felt that it could hardly be further subdivided. The situation is too absurd for serious contemplation. The same conditions, unfortunately, prevail, very near home, and even men of great distinction in their profession are glad to be dubbed with a professor's title, as if it were an honorary degree. Such a situation is unbearable to any right-minded person, and no doubt is doing more to discredit medical teaching than any other one thing. If any protest can avail, it should be forthcoming to check this growing tendency, and we entirely agree with the spirit of Dr. Dwight's article in this regard.

But Dr. Dwight is speaking solely of our conservative larger universities, and even then he finds cause for a warning; other things being equal, the dignity of a university depends upon the care with which its promotions are made. A conservatism in this direction is its most important safeguard. But looking at the matter from a still broader point of view, it must at once be admitted that the ultimate welfare of an institution depends upon the intellectual character of its teaching force. If a university or a medical school is to be truly great it must have nothing short of great men at the head of its various departments. It is just at this point, then, regarding the matter from a purely theoretical point of view, that we think Dr. Dwight's argument falls short of its logical conclusion.

It is certainly possible that the head of a department may be incompetent; he may fall short of the standard of his position in many ways; his methods may be antiquated, he may well have failed to keep pace with the progress in his chosen field; he may be a poor teacher, and a man whose presence in so important a position is a detriment rather than an inspiration. However seldom this may happen, it is at least a possibility which must be met. Evidently nothing could be more deadening in its influence to a whole department than an inefficient man at its head. In our country, and particularly in our medical schools, even the best, there is too often indication that a high position is held as a means and not as an end in itself. It is regarded as valuable because it leads to other things; the mercenary spirit is still too rife to permit of the position being always estimated at its true dignity, and if it is not, the position and ultimately the university must of necessity be the sufferer.

All these unfortunate possibilities Dr. Dwight passes over. Although admitting fully the personal accountability of the professor, and the nature of his trust, he fails to allow for his possible shortcomings, which as human nature is constituted must surely often exist. There is all through his paper the implication that a person who has attained a professorship must be the right man for the place, and a fit director of his department. He nowhere admits the possibility of the dismissal of a full professor, but in speaking of the assistant professor he puts himself on record as in favor of drastic measures. Of reappointment, he says: "Probably this must be the rule while human nature is what it is; but, brutal as it may sound, it is a pity that the fact of holding the place should count against greater merit, should such be obtainable."[1] We know it is impossible, but we must often feel that it is also a pity that any office should be exempt from the rule which Dr. Dwight lays down for the assistant professorship.

But evidently, whether fortunately or not, and whatever his attainments, the professor, once appointed, must stay. Admitting, for the sake of argument, the foregoing, it seems to us reasonable and fair that subordinates in increasing numbers should be given places, always provided their work justifies their appointment. We see no danger to the university in the establishment of the position of associate professor or clinical professor, nor can we see the most remote infringement on the rights of the full professor from the making of such places. He will remain the head of his department always in name, and also in fact, provided his intellectual attainments make him a leader; if they do not, he will be superseded in spite of himself, and should be. Such leadership in no way depends upon a title, but always upon the man himself. If he be really strong and confident of his powers, he need have no anxiety on the score of his associates, be they professors, or assistants of any other sort.

From the point of view of the subordinates we also believe in advancement. It is a legitimate encouragement to their efforts, and we are convinced that the failure to advance men has frequently meant the loss

[1] Harvard Graduates' Magazine, June, 1898, p. 486.

of admirable teachers and investigators. It does not injure a university to be liberal, and certainly the bestowal of a title like associate professor, means nothing more than a recognition of distinguished merit, an attainment, in other words, equal to that of the full professor. When given for such cause, it is hypercriticism to find fault. Such appointments mean added strength in almost every instance, when bestowed in the proper spirit. Why, under these circumstances, a department should "suffer from two heads," it is hard to see. That depends wholly upon the original head, and upon his capacity for leadership, as already indicated. Not infrequently the true strength of a department comes from its assistant and associate professors.

In general, then, we feel very strongly that appointments to teaching positions should be made and retained by the merit-system alone, and that that merit-system should prevail from top to bottom and not be arbitrarily laid aside at any point in the sequence of office. We do not, therefore, agree with Dr. Dwight's conclusion. Speaking of the desirability of a head, which we have in no way questioned, he goes on to say: "What is true of the university as a whole, is, I conceive, true of each department, of which the professor is the natural head. To him belongs the credit of success, from him should be exacted the penalty for failure. To reward merit among the subordinates with a duplicate title and with a share of the rights and duties that belong to the head is nothing more nor less than paying in fiat money. What is worse is, that this is done at the expense of the original holders of the positions."[2]

THE RELATIONSHIP OF PELVIC DISEASE TO NERVOUS AND MENTAL AFFECTIONS.

THERE is no doubt as to the frequent coincidence of nervous and mental disorders with uterine disease. Whether the pelvic ever stands in direct causal relation to the nervous disease is a question which authorities at the present day are slow to answer in the affirmative. Naturally the specialist, who sees everything from the narrow point of view of his hobby, and who insufficiently recognizes the complexity of causes which are concerned in every biologic or physiologic phenomenon, will sometimes fail to discern in a case of hysteria or neurasthenia anything but a lacerated cervix, an endometritis or a salpingitis demanding treatment, and will quite ignore other factors of prime importance; and he will be quite disheartened when his radical operation fails to cure the nervous malady. Although the generative organs of woman are intimately allied to her nervous organism, it is not quite true that woman is, as Michelet says in his celebrated definition, "Une matrice servie par des organes," and there is not now a general belief in a constant relation existing between hysteria and morbid states of the uterus; in fact, it has been shown that hysteria is not peculiar to the female sex. Moreover, when hysteria appears in the male, it is very generally due to causes other than sexual.

Neurasthenia is a general disease of the nervous system. The influence of overwork, mental and physical, in the production of this common malady, of traumatism, of infectious diseases (especially typhoid fever and *la grippe*), of the depressing passions and emotions, of the abuse of stimulants and narcotics has been insisted upon by all authorities. If morbid states of the uterus may cause neurasthenia, it can only be by their intensity and persistency, and by entailing profound disorders of the general nutrition, of the neurons in particular. It is quite in accord with experience that repeated uterine hemorrhages entail anemia and may entail severe neuroses or psychoneuroses; but the same result would be entailed by prolonged hemorrhages from any other organ. If intense prolonged pain in the pelvis may cause hysteria or any other neurosis in a predisposed subject, so may pain in any other part of the body.

The same may be said of epilepsy, chorea and insanity. It is only exceptionally that these diseases are brought about by the morbid irritation of a grave pelvic disease, or are of known reflex origin.

These views coincide with opinions expressed at the American Medical Association, in Denver, by several of the speakers, notably Dr. Frederick Peterson, of New York, and Dr. F. X. Dercum, of Philadelphia. The doctrine that "a simple laceration of the perineum may cause all the classic symptoms of neurasthenia . . . which disappears when the perineum is restored" found no support from them.

Dr. Peterson thinks that "the pelvic organs play but a small part in nervous complications, which have to do with the entire organism of woman." He affirms that "the pelvic organs have little if any effect upon psychic conditions." "The field of the gynecologist is very limited in the nervous domain."

Dr. Dercum declared that hysteria may exist without pelvic disease. If the two coexist, they have no relation to each other. A woman with some pelvic condition, as laceration of the cervix or perineum, or displaced uterus, may not complain until neurasthenia develops, when she commences to suffer from the symptoms of the pelvic disease. If pelvic disease exists with neurasthenia, the pelvic symptoms become more marked because of increased irritability. He denied the possibility of nervous and mental diseases arising from pelvic operations. The pelvic condition demands operation for the local lesion only, and not to relieve the nervous malady. In cases of profound hysteria, an operation should never be undertaken unless the surgical condition is very urgent. The insanities are not due to local organic disease, but to disease of the neurons, as a result of various derangements of tissue metabolism. Pelvic operations will not cure insanity.

The doctrine of the "reflex effect" of diseases of the pelvic organs on the general nervous system, is apparently being relegated where it belongs.

[2] Loc. cit., p. 488.

MEDICAL NOTES.

DR. WILLIAM OSLER will succeed Dr. William H. Welch as Dean of the Johns Hopkins Medical School in October.

YELLOW FEVER. — There have been no new cases of yellow fever at McHenry, Miss., in several days, and it is hoped that no more will occur.

PRACTITIONERS IN GREAT BRITAIN. — According to the "Medical Register" for 1898, the total number of legal medical practitioners in the United Kingdom is 34,642. There were 1,066 names removed from the "Register," and 1,230 names were added to the list. This is nearly 200 less than the average number admitted annually during the past five years. The net gain in the number of medical practitioners is therefore only 164.

DEATH AT ONE HUNDRED AND SEVENTEEN. — Mr. Patrick Haggins, said to be the oldest man in Pennsylvania, died recently in Scranton, Pa., aged one hundred and seventeen years. His age is said to be authenticated by records and certificates which show that he was born in County Londonderry, Ireland, November 1, 1781. Mr. Haggins's father died at the age of one hundred and eleven years and his mother at one hundred and seven.

THE FRENCH SURGICAL ASSOCIATION. — The twelfth Congress of the French Surgical Association will be held at the Faculty of Medicine in Paris, beginning October 17, 1898. There will be two principal subjects for discussion, namely, "Nephrotomy," introduced by Guyon and Albarran, and "The Treatment of Goitre (cancer and exophthalmic goitre excepted)," introduced by Reverdin, of Geneva. The Secretary of the Association is M. Lucien Picqué, of Paris.

THE CALCUTTA GENERAL HOSPITAL. — A novel feature of the new general hospital for Europeans in Calcutta, India, the corner-stone of which was recently laid, will be a system of ventilation during the hot and rainy seasons by cold and dried air. During the hot and rainy seasons Calcutta has a temperature ranging from 85° to 95° F., and a humidity which frequently reaches 90 per cent. It is proposed to establish a uniform temperature in the wards, of from 75° to 80° F., and a humidity reduced to about 60 per cent., as a necessary part of the process of cooling the air.

THE PASTEUR MONUMENT. — The monument to Pasteur, which is to be erected in Paris in the space in front of the Pantheon, is now almost completed. M. Falguière, the sculptor, has introduced certain modifications into his original design, in which Pasteur was simply represented as overcoming Death, which was in the act of flight. Now a group of a mother with her child, thanking Pasteur, has been added on the right, while behind the central figure Fame is shown crowning him with laurels. The international subscription to the memorial now amounts to nearly £13,000.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, July 6, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 32, scarlet fever 13, measles 81, typhoid fever 14.

THE RHODE ISLAND MEDICAL SOCIETY. — The eighty-seventh annual meeting of this society was held in Providence on June 2d, under the presidency of Dr. W. A. Gorton.

THE BURRELL ETHER PRIZE. — The Herbert L. Burrell Ether Prize has been awarded for the term of six months ending July 1st to Mr. Arthur S. Hartwell and Mr. George F. McIntire, who were recommended by the committee as being of equal merit.

IMPORTANT! The *New England Anti-Vivisection Society Monthly* for July, 1898, makes the following startling statement: "It requires ten times as much strychnine to kill a chicken as would suffice to kill a pheasant; yet HALF A DRACHM of this poison has proved fatal to human beings."

NEW YORK.

THE RED CROSS HOSPITAL YACHT. — The hospital yacht, formerly the Admiral, recently purchased for $40,000, sailed on June 29th for Key West with a stock of medical and hospital supplies and two x-ray outfits. On board were four surgeons of the Red Cross Society, Drs. Soliosso and Carbonell, of Cuba, and Drs. Lesser and Sewall, of New York.

PROFESSORS FLINT AND DENNIS OF CORNELL UNIVERSITY MEDICAL DEPARTMENT. — The newly arranged medical department of Cornell University in New York has received two important accessions from the former faculty of Bellevue Hospital Medical College. Dr. Austin Flint, for over a quarter of a century Professor of Physiology and Secretary of the Faculty of the Bellevue School, is to be Professor of Physiology, and Dr. Frederick S. Dennis, for several years past Professor of Surgery of Bellevue, is to be Professor of Clinical Surgery in the Cornell school. A well deserved compliment was paid in the appointment of Dr. Austin Flint, Jr., to the chair of obstetrics in the University and Bellevue Medical College. It is less than ten years since young Dr. Flint was graduated from Bellevue, but his marked ability was early recognized by the late Prof. Wm. T. Lusk, who took him as an assistant. The high reputation of this distinguished medical family is thus well maintained from generation to generation.

DR. FOWLER APPOINTED SURGEON OF VOLUNTEERS. — Dr. George R. Fowler, the eminent Brooklyn surgeon, having received an appointment in the Volunteer medical service with the rank of Major, has been ordered to report immediately to Gen. Fitzhugh Lee, at Jacksonville, Fla.

Typhoid Fever at Camp Alger. — Eight cases of typhoid fever having occurred among the soldiers of the New York Cavalry Squadron at Camp Alger, Virginia, a medical board consisting of Major Coole, Chief Surgeon First Division, Major Along, Chief Surgeon Second Division, and Major Phillips, Brigade Surgeon, made an investigation of the source of trouble and have now reported that four of the cases were contracted before the men left home, as the disease developed within a few days after their arrival at the camp. The other four, contracted while in camp, they state, are without doubt the result of carelessness in drinking water while on practice marches. The board is prompted to this finding because the water used by the cavalry command in camp is either boiled or water that is shipped from New York and certified to as being pure.

Sailing of the "Relief." — The United States hospital ship *Relief*, formerly the John Englis, of the Maine steamship line, sailed for Santiago on July 2d. She is completely fitted up for hospital purposes and under ordinary circumstances can accommodate 300 patients, but in case of emergency is capable of receiving twice that number. The medical staff is under the charge of Major George H. Torney, and consists of eight surgeons, including a microscopist, Dr. Gray. There are four hospital stewards, and assistant stewards, and sixteen specially selected nurses, ten male and six female, from Bellevue Hospital. While the *Relief* flies the Red Cross flag she is not under the control of that organization, but is a regular Government vessel, with every one on board enlisted in the United States service. About thirty of the graduate nurses of the Red Cross Society have started for Tampa within the last few days.

Miscellany.

THE CLINICAL SOCIETY'S COMMITTEE ON ANTITOXIN IN DIPHTHERIA.

In its main results the investigation into the use of antitoxin in diphtheria, undertaken by a committee of the Clinical Society of London, according to the *Lancet*, harmonizes with the experiences which have from time to time been published in different quarters. The summary report read by Dr. Church at the last meeting of the Society gives in general terms conclusions which are eminently favorable to the value of the treatment.

The committee would appear to have taken great pains to avoid fallacies and to have made a rigid selection of the reports furnished to them from various hospitals in order that erroneous inferences might be avoided. By comparison of the series of cases treated with antitoxin with another series not so treated it would seem that the use of the serum was marked by a reduction in the fatality of diphtheria from 29.6 per cent. to 19.5, a reduction most marked in patients under the age of five years. But perhaps the most striking evidence of the efficacy of antitoxin, particularly when it is early administered and in adequate amount, is to be found in the results of tracheotomy. It would seem that since its employment there has been a diminution of cases requiring tracheotomy and, what is more obvious, a very marked lessening of the mortality among those subjected to this operation. A fall in fatality-rate from 71.6 per cent. to 36 per cent. speaks volumes and by itself must carry conviction as to the powerful action exerted by antitoxin upon the local process.

The committee inquired into the relative results accruing from variations in the period of the disease at which the injections were made, and also the comparative effects of different amounts injected at once. It was stated, however, that no connection could be discovered between the amount of antitoxin injected and the subsequent occurrence of paralysis. It is instructive to learn that in very nearly one-third of the cases some form of rash, mostly erythematous, occasionally urticarial, supervened at periods varying in the majority of from six to twelve days after the injection. These rashes were accompanied by rise in temperature in about one-half of the cases and in a certain number by joint-pains. As regards suppression of urine no difference was observed in the liability to this grave event amongst those treated and those not treated by antitoxin.

The general result of the inquiry is succinctly yet sufficiently stated to have been "that in the cases treated with antitoxin not only is the mortality notably lessened, but the duration of life in fatal cases is also prolonged," and it is added: "The injection of antitoxin may produce rashes, joint-pains and fever; with these exceptions no prejudical action has been observed in the series of cases investigated to follow even in cases in which a very large amount of antitoxic serum has been used."

The fact that tracheotomy and not intubation is the operation with which the English statistics deal is a curious evidence of insular conservatism. Since the introduction of antitoxin into practice intubation has displaced tracheotomy in this country, and in many European hospitals to a greater extent than ever before. The report as a whole is interesting as adding one more to the long list of favorable antitoxin statistics in diphtheria.

THE CUSTOM OF "DHARNA."[1]

The legal practice in India of *Dharna*, or sitting at a debtor's door and not eating until the debt is paid, still obtains in that country and is as old as the laws of Manu. The debtor must either pay up or move away, or else the creditor will starve himself to death.

This would seem to us a very silly proceeding on the part of the creditor; but Dr. S. R. Steinmetz, in a study of the custom printed in the *Revista Sociologia Italiana* for January of this year, points out that when the meaning and origin of the usage are appreciated, it is by no means so foolish as it looks. Should the creditor die from hunger, the debtor is held responsible for murder, and the terrible penalties of blood revenge will be wreaked upon him by the family of the creditor. Not only the debtor himself, but all his kin or gens will become the targets of a merciless vendetta. With this certainty in view, any sacrifice on his part would be wiser than to allow the creditor to perish.

[1] Science, July 1, 1898.

METEOROLOGICAL RECORD

For the week ending June 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Direction of wind. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	Weather. 8.00 A. M.	Weather. 8.00 P. M.	Rainfall in inches.
S...19	29.72	66	70	62	80	64	72	S.W.	S.W.	17	8	O.	O.	.56
M...20	29.70	68	77	59	74	59	66	N.W.	W.	17	7	C.	F.	
T...21	29.80	66	58	73	86	64	75	S.W.	N.W.	12	7	O.	C.	.20
W..22	30.02	61	67	55	69	74	72	N.	N.	9	8	C.	C.	
T...23	30.13	63	72	54	84	74	79	N.	S.W.	7	10	F.	C.	
F...24	29.80	73	83	61	72	55	64	W.	S.W.	10	11	O.	C.	
S...25	29.50	80	92	68	60	68	64	S.W.	N.	12	4	C.	O.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 25, 1898.

Cities	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping-cough.	Diphtheria and croup.
New York	3,438,899	1078	428	16.29	9.81	6.66	1.20	2.88
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	387	152	17.16	8.84	9.10	.78	3.96
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,060	237	120	24.78	6.30	17 22	.84	2.52
Boston	517,732	171	49	8.12	11.60	1.74	1.16	.58
Cincinnati	405,000	82	—	7.32	13.42	4.88	—	1.22
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	—	—	—	—	—	—	—
Washington	277,000	138	67	25.55	11.68	19.71	—	1.46
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	45	11	11.11	11.11	6.66	—	—
Worcester	105,060	26	14	7.70	11.55	3.85	—	—
Fall River	95,919	22	11	16.60	12.45	16.60	—	—
Nashville	87,754	32	10	15.63	28.17	12.52	3.13	—
Lowell	87,193	35	8	11.44	20.00	5.72	—	2.86
Cambridge	86,812	16	7	12.50	12.50	—	—	12.50
Lynn	69,220	—	—	—	—	—	—	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	13	7	15.38	7.69	15.38	—	—
Somerville	57,977	24	6	8.33	—	—	—	—
Lawrence	55,510	14	9	14.28	14.28	14.28	—	—
Springfield	54,730	18	8	22.22	11.11	22.22	—	—
Holyoke	42,364	12	5	16.66	8.33	8.33	—	—
Salem	36,062	10	3	—	—	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Malden	32,894	9	2	11.11	—	—	—	—
Chelsea	32,716	17	0	—	5.88	—	—	—
Haverhill	14,406	4	1	—	25.00	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	25,990	—	—	—	—	—	—	—
Fitchburg	28,292	5	0	—	20.00	—	—	—
Taunton	27,813	5	0	20.00	—	—	—	20.00
Quincy	22,562	4	1	—	25.00	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	8	2	—	25.00	—	—	—
Everett	21,575	1	0	—	—	—	—	—
North Adams	19,135	5	0	—	20.00	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,368	15	8	20.00	20.00	20.00	—	—
Brookline	16,164	3	1	—	—	—	—	—
Medford	15,832	3	0	—	33.33	—	—	—

Deaths reported 2,451: under five years of age 982; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 401, consumption 280, diarrheal diseases 210, acute lung diseases 197, diphtheria and croup 61, whooping-cough 29, cerebro-spinal meningitis 27, typhoid fever 26, measles 23, scarlet fever 20, erysipelas 8.

From cerebro-spinal meningitis New York 12, Baltimore and Boston 3 each, Philadelphia, Providence and Somerville 2 each, Worcester, Holyoke and Hyde Park 1 each. From typhoid fever New York 11, Philadelphia 7, Washington 4, Baltimore, Boston and Lowell 1 each. From measles New York 14, Philadelphia and Baltimore 3 each, Boston 2, Cincinnati 1. From scarlet fever New York 15, Baltimore 3, Philadelphia and Malden 1 each. From erysipelas New York 3, Boston 2, Washington 1.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWENTY-TWO DAYS ENDING JUNE 30, 1898.

AUSTIN, H. W., surgeon. Relieved from duty at Bureau, and directed to rejoin station at Boston, Mass. June 23, 1898. Relieved from duty at Boston, Mass., and directed to proceed to Philadelphia, Pa., and assume command of Service. June 30, 1898.

IRWIN, FAIRFAX, surgeon. Upon being relieved by Surgeon H. W. AUSTIN, to proceed to Boston, Mass., and assume command of Service. June 30, 1898.

WHEELER, W. A., surgeon. To proceed to Cleveland, Ohio, and assume temporary command of Service during absence of Surgeon D. A. CARMICHAEL. June 16, 1898.

GLENNAN, A. H., passed assistant surgeon, To proceed to Egmont Key Detention Camp, Fla., for special temporary duty. June 9, 1898.

WHITE, J. H., passed assistant surgeon. To proceed to Fontainebleau, Miss., detention camp for special temporary duty. June 14, 1898.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Fontainebleau, Miss., detention camp for special temporary duty. June 9, 1898.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Statesville, N. C., for special temporary duty. June 9, 1898. To proceed to Reidsville, N. C., for special temporary duty. June 28, 1898.

BROWN, B. W., passed assistant surgeon. Granted leave of absence for five days. June 28, 1898.

STEWART, W. J. S., passed assistant surgeon. Granted leave of absence for two days from July 1, 1898. June 25, 1898.

DECKER, C. E., assistant surgeon. Granted extension of sick leave for one month from June 23, 1898. June 23, 1898.

TABB, S. R., assistant surgeon. To proceed to Fontainebleau, Miss., detention camp for special temporary duty. June 13, 1898.

CLARK, TALIAFERRO, assistant surgeon. To proceed to Brunswick Quarantine, Ga., and assume temporary command of Service during absence of Sanitary Inspector R. E. L. BURFORD. June 22, 1898.

FOSTER, M. H., assistant surgeon. To proceed to Savannah, Ga., and assume temporary command of Service. June 13, 1898.

BOARD CONVENED.

Board convened June 22, 1898, to report by letter on the physical condition of Assistant Surgeon C. E. DECKER. Passed Assistant Surgeon A. H. GLENNAN, Chairman; Passed Assistant Surgeon W. G. STIMPSON, Recorder.

RESIGNATION.

NORMAN, SEATON, assistant surgeon. Resignation accepted to take effect June 22, 1898.

BOOKS AND PAMPHLETS RECEIVED.

Twentieth Annual Report of the Board of Health of the City of Lowell for the year 1897.

Some Observations on Syphilis of the Nervous System. By J. W. Courtney, M.D., Boston. Reprint. 1898.

The Sanitary Redemption of Havana: The Need and the Means. By George Homan, M.D., St. Louis, Mo. Reprint. 1898.

Notes on Malaria in Connection with Meteorological Conditions at Sierra Leone. By Surgeon-Major E. M. Wilson, C.M.G. London: H. K. Lewis. 1898.

Wesen Ursache und Behandlung der Zuckerkrankheit. (Diabetes Mellitus). Von Dr. Albert Lenné, Im Bad Neuenahr. Berlin: Verlag von S. Karger. 1898.

Ueber Naftalan. Von Dr. Friedrich Rosenbaum, Arzt am Michael-Krankenhause in Tiflis. Sonderabdruck aus der "Deutschen Medicinischen Wochenschrift," 1898, No. 14.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, New York. Vol. V, Part II. For the Collegiate Year 1897-98. Reprint.

Die Technik der Speziellen Therapie für Aertzte und Studierende. Von Dr. F. Gumprecht, Privat docent in Jena. Mit 181 Abbildungen im text. Jena: Verlag von Gustav Fischer. 1898.

Original Articles.

APPENDICITIS.[1]

BY MAURICE H. RICHARDSON, M.D., AND G. W. W. BREWSTER, M.D.

REMARKS BASED UPON A PERSONAL EXPERIENCE OF 750 CASES; INCLUDING 150 CONSECUTIVE CASES SUCCESSFULLY OPERATED UPON "IN THE INTERVAL."

In the present communication a few observations are recorded which, it is hoped, may aid a little in the solution of some of the questions which have arisen in connection with this extremely important disease. It is not intended to discuss the subject in detail, but rather to bring up certain features in which we have taken especial interest. The total number of cases observed includes all those in which the question of appendicitis has been raised. Though in some the symptoms were doubtless due to other lesions, yet in the great majority of cases the diagnosis was shown, either by operation or by autopsy, to be appendicitis. The total number includes not only the cases operated upon by ourselves, but also a few in which the operation was performed by others after we had seen the patient; it includes likewise cases in which we have performed secondary operations, for the cure of hernia, for the removal of the appendix after a drainage operation, or for the closure of a fecal fistula. There are a few in which, after operations by others, we have found hopeless conditions not admitting further interference.

The mass of material is so great that we shall offer at this time only a few remarks, hoping to bring out the views of others upon some of the questions that continue to arise in connection with appendicitis.

The total number of cases up to January 1, 1894, as published in a revised reprint from the *American Journal of the Medical Sciences* was 213. From January 1, 1894, to the end of 1897 we saw in private 435 cases; during the same period, in Dr. Richardson's service at the Massachusetts General Hospital, there were 86, making a total of 734. The cases seen thus far in 1898 have increased the number to 756.

It would be interesting to consider in these cases many points which the scope of the present communication cannot include, but which we hope to bring forward at some future time. For present purposes a few points only are presented, and those chiefly dealing with the question of immediate interference in acute cases, and with the so-called "interval operation."

The most important facts bearing upon questions of treatment may perhaps be best emphasized by a careful investigation of the fatal cases. However grave the successful ones may have seemed at the time, the fact remains that they *were* successful. Treated in any other way than that in which they were treated, they could not have done more than recover. In considering the fatal cases, however, the question arises whether by any other method of treatment than that which they received they might have been saved.

Of the total number of cases, there have been classed as chronic 69 in which operation, whether advised or not, was not performed; 151 classed as chronic (relapsing or recurring) were operated upon with success.

[1] Read before the Boston Society for Medical Improvement, February 21, 1898.

In private practice there were seen 149 acute cases which recovered without operation. Some of these were afterwards operated upon in the interval.

There were 63 deaths after operation in acute cases, and 31 patients were moribund when first seen, dying almost immediately. There were 221 recoveries after operation. Of these in 100 an abscess was simply drained; in 112 the appendix was removed; in 9 we have no record as to the method of operation.

Operated upon in the quiescent state there were 151 cases and 151 recoveries.

In going over our records it is probable that a few cases have been overlooked. The statistics here given are in the main, however, correct,— certainly no fatal cases have been omitted.

Up to 1894 there were 12 cases in the list of those which were not operated upon that were moribund when first seen. Since that time there have been 19 similar cases, making a total of 31, a percentage of 6.8 in 464 acute cases. Of these 464 acute cases 284 were operated upon, 63 dying after operation. The total mortality of the cases operated upon is 21 per cent. This large mortality is owing to the advanced period of infection at which operation was attempted, for in almost every case there was found to be a general peritonitis. The operation was undertaken as a forlorn hope in some of the cases — cases in which even our present improved methods of technique could offer no effectual means of success. In some of the early cases operation was performed under conditions so hopeless that, had we possessed our present experience, we should not have interfered. Indeed, in the list of cases published in 1894 there were included among the fatal operations one in which the appendix was removed after death, — an error in statistics which is hardly justfiable even when presenting the dark side of one's experience.

In a certain number of cases, however, the fatal result has been owing to the following causes: In one or two there has been a pulmonary embolism. In several an acute septicemia, without a general peritoneal infection; in one pneumonia; in one (doing well) suicide. In one, death followed operation upon a subphrenic abscess after a successful appendectomy by another surgeon. In several cases a secondary abscess has caused death, even after removal of the appendix and thorough separation of all existing adhesions. In several of the fatal cases a localized infection was made general by direct contamination of the healthy peritoneum, in spite of all efforts to prevent this accident.

The danger of converting a localized into a general infection by operating under certain conditions ought perhaps to receive more consideration than it does. That such a catastrophe is not infrequent we are convinced. Moreover, a general infection thus occurring in cases of the severer kind is rapidly and, we believe, almost surely fatal. This type of case is seen most frequently on the third or fourth day. Though the patient's general appearance, temperature, and pulse may be good, it will be noticed that an operation, even the most rapid, will be attended by an immediate constitutional depression deep enough to excite the gravest alarm. In such cases one is only too glad to get the patient to bed alive. It is idle to contend that in such cases this or that method of treating the general peritoneum will give the patient more than an inconsiderable chance. In most cases of death

after operation the patient has survived less than twenty-four hours.

On the other hand, fatal cases occur in which the operation is safely withstood, but in which in the course of two or three days a general infection supervenes. In some of these cases cultures taken at the time of the operation have shown no infection of the effused serum; in others this free fluid has been found to be infected. Though a large and constantly increasing percentage of recoveries takes place in these proved general infections, yet a very considerable number proved fatal.

In view of the cases of similar severity and similar local signs which have recovered without operation, and which have later been subjected to the so-called "interval" operation, it seems to us clear that the question of interference on the third or fourth day should be most carefully considered.

It has been demonstrated in more than one case, moreover, that as early even as the first twelve hours a general infection has taken place. In several of these cases an acute intestinal obstruction was supposed to be present. Operation revealed a general fecal contamination. In several the constitutional depression was such that operation, though attempted, was hopeless. Cases of this description will probably be in the future almost if not quite as fatal as in the past, for in them the patient barely survives the shock of the briefest operative measures.

The cause of infection may in some of these cases be appropriately called operative. In some instances we have found two and even three areas of infection. The appendix itself sloughing and perforated is surrounded by thick pus, dark green, or cream-colored. Adjacent to this, especially when the appendix is situated in the pelvis, a localized peritonitis will be found, comprising a large amount of fluid enclosed between adherent intestinal coils, bladder, rectum and pelvic walls. This fluid varies in color, consistency and odor and we may say in virulence. It is often yellow and opaque, of coffee-grounds appearance, or greenish yellow. It is often fecal in odor. This fluid, though not surrounding the appendix, is at some point in direct connection with it. The third area comprising the rest of the peritoneal cavity, whether infected or not, will be found to consist of serum either clear or slightly opaque. Whether this fluid is infected or not can be demonstrated only by culture and bacteriological examination. The fact that it is sometimes turbid does not prove that it is septic.

The course of the infection in cases of this kind is by direct contamination, though apparently the different fluids are shut off from one another by adhesions. It is probable that one surface of the diseased appendix starts the one, another the other. The infection of distant regions takes place, probably, through minute extravasations from the original foci, — contaminations which do not occur until a considerable serous exudate has formed in the general peritoneum. It is not improbable that the three areas of infection differ in age as they do in gross appearances; that this first infection causes a gangrene of the appendicular wall; that this in turn affects its contiguous tissues; that soon after a more or less extensive appendicular abscess supervenes; that a localized peritonitis follows either from the abscess or from a new focus at the appendix itself; and that finally the general and fatal infection occurs. Fortunately this course is confined to a comparatively few cases, and a fatal result by no means follows. Successful interference in this, as in most severe cases, depends upon restraining the infection within moderate limits. This can best be done, in our opinion, by Dr. Harrington's method of gauze packing. Instead of keeping as far as possible away from the peritoneum, and incising well to the outside, Harrington makes his incision toward the median line, well inside the tumor. This cut seeks the immediate opening of the peritoneal cavity without separating the adhesions about the appendix. It gives information at once as to the condition of the general cavity of the peritoneum. Moreover, the situation and extent of the tumor may be determined, though digital exploration must be very carefully made for fear of breaking into the localized infection too soon.

The situation having been recognized with tolerable accuracy, the next step consists in walling about the infected area with gauze. This may be done with great deliberation and nicety if the patient's condition permits. The appendix is separated with the finger, and its immediate locality drained and disinfected. When the appendix is at the brim or below it, a second area of infection is often found. This is allowed to drain outward, and is immediately washed out and disinfected. Should this general serous exudate prove sterile, the patient will recover. Should it prove infected, he may recover, or he may die: it depends on the nature of the infection.

When, however, in spite of every care these infective fluids escape, welling up from their cavities and spreading over the whole field, the chances of recovery are much diminished. Not that recovery is impossible under these conditions, for many cases go on to convalescence; but we cannot but regard the dangers of general infection and death as extremely grave, in spite of careful irrigation by salt solution and the latest methods of treatment.

The fatal cases after operation make a deplorable list. Many of these were recognized as practically hopeless, but the operation was, nevertheless, undertaken. We were sure enough of the fatal result and should have advised against operation but for the occasional recoveries in the face of the most adverse circumstances. Yet subsequently the question always arose whether it would not have been better not to interfere in such cases, in the hope that there might remain a chance of recovery which a desperate operation removed.

A few cases have been included in the list of fatalities in which the operation was performed by others. Most of these fatal cases had their warning, as the history of their lives previous to the fatal attack conclusively shows.

The cases which resulted fatally without operation include the cases which were moribund when first seen. The list is a long one; but the number, in this community at least, is steadily diminishing. It is extremely desirable, however, that the number of cases in which the surgeon is called only when the conditions are extremely grave should also diminish.

The cases successfully operated upon include a large number in which the outlook was grave; a few in which it seemed practically hopeless. The majority of cases were, however, encouraging at the time of operation.

Localized abscesses of a week or more duration practically all recovered under simple drainage. Appendectomies for gangrene and perforation usually recovered if the tumor was small and well localized. Many recovered with the demonstrated general infections; many after extensive contaminations during operation.

It would be interesting to consider the subsequent history of cases simply drained. That this method of treatment is advisable in many cases, we are convinced. We limit its use first to cases of long standing — a week or more — in which there is an abscess with firm walls; and, secondly, to other localized collections in which the patient's condition is too serious to permit a search for the appendix. The former almost always recover, and may be operated upon later in perfect safety when the hernia which so often follows operation in the acute stage may be sewed up. The latter may be tided over the stress of impending calamity and have the appendix removed at a more favorable opportunity.

In a considerable number of the abscess draining cases there has been evidence of complete gangrene of the appendix. In many, fecal concretions have escaped with the pus. In some, subsequent operations have shown that the appendix remained in practically all its former virulence. We have not been able as yet to convince ourselves that there is any very considerable number of recurrences after drainage; yet we believe that a hernia in the scar or the slightest grumbling in the region of the appendix should be followed by operation.

Fecal fistula so commonly follows removal of the appendix in acute cases in which there has been an extensive suppurative process that we look upon it as almost unavoidable. It may be encouraging to those who see for the first time this disagreeable complication to know that almost without exception fecal fistulæ heal spontaneously, even if the opening is a large one. Of our own cases we have operated upon but one. In that an abscess broke into the cecum shortly before the operation. A fecal fistula persisted. We finally operated for this fistula as well as for a hernia in the scar and for the removal of the appendix. The fistula was in the cecum about two inches from the base of the appendix.

In one of the most prominent private cases the entire contents of the intestines came out of the wound for months. In this case the appendix was not removed. There was an appendicular abscess in the deep pelvis. An opening was made through the vagina and in the right iliac fossa. Both became in the course of a few weeks fecal fistulæ. Both closed. The formation of a fecal fistula depends somewhat upon the seat of the gross perforation, though we have known one to occur when the opening was at the base, the middle or the tip, — the closer to the cecum, the more likelihood of a fistula. The seat of the perforation has, too, a great influence on the prognosis. We used to think that the fulminating cases depended upon bacteriological considerations, upon sluggishness in the peritoneum in opposing adhesion-barriers, and perhaps upon other causes. It seems clear now however that the violence of the infection is very largely dependent upon the size of the hole, its seat with reference to the cecum, the size of the appendicular lumen, the patency of Gerlach's valve, the liquidity of the cecal contents. These, even opposed by a most vigorous and absorptive peritoneum, will break down barriers that would successfully resist a less forcible attack. Moreover, the very rapidity of attack, the great volume of fecal escape, tear aside the hasty barriers which the peritoneum tries to raise and invade the abdomen to its farthest recesses. This seems the most reasonable explanation of these rapidly fatal cases in which an exploration shows in the first hours of the disease a fatal peritonitis. Indeed in such cases we find the appendix perforated near the base. In one recent case the stump was gangrenous so near the cecum that no ligature would stay on.

It seems not unreasonable to state in connection with the class of cases thus far considered that the question of operative interference is not so simple as it might at first glance appear; that the greater one's experience in all classes of acute cases, the greater the number that will justify serious doubts as to the advisability of interfering in every case "as soon as the diagnosis is made." This rule may be a good one if every case can be seen and operated upon at the very outset — most cases could be saved by following such a rule; but at the time the case comes to the physician for treatment or to the surgeon for operation those conditions so favorable to operation have given place to others and the patient, fully under the malign influences of the disease, must be treated in the way which in his particular case is, on the whole, the safest. That immediate operation is demanded in every case, and that that operation shall in every case be the removal of the appendix, seems to us a position which is rendered untenable by the facts as they are thus far known. That most of the severe cases seen after the symptoms are fully developed require interference at some time during the attack seems fully proved; but that that time shall invariably be as soon as the diagnosis is made must challenge serious doubt. For example, not to go into this question too fully at this time, a patient in whom a severe attack is rapidly subsiding should not be operated upon so long as his symptoms continue to improve. An aggravation of symptoms after a temporary subsidence demands almost invariably an operation and an operation with greater chances for success at the end of a week than upon the third or fourth day. On the other hand, a case that has been not only not improving, but increasing in gravity should be immediately explored.

In many of the successful operative cases the interference was postponed from day to day until it was clear that recovery without operation was highly improbable.

In some instances — a very few — the operation proved fatal; in others, the patient after a delay died suddenly, unrelieved. We believe that operation ought to have been immediately performed in a certain number of these cases. On the other hand, interference was resorted to on several occasions when subsequent developments showed that it would have been better to wait. These were cases of moderate severity in which there was a localized tumor without general infection. The fatal results in several of the cases justify the query whether it would not have been better to wait.

These remarks, it should be stated, apply to those cases first seen when the disease was at its height. Cases seen by the surgeon in the very beginning, when the symptoms both local and constitutional are severe, should be, as a rule, explored immediately.

In reviewing those acute cases not operated upon, we must include 31 which were moribund at our first visit,

as well as those in which a policy of delay seemed best. The latter deserve especial emphasis inasmuch as it is upon these that the strongest arguments in favor of universal exploration must be based. Those cases which prove fatal after operation may be quoted either in favor of earlier interference or of no interference. It cannot be said that either method might not have been successful. The chances, it is true, favor the former, for it must be admitted in view of the safety of the "interval" operation that appendectomy before perforation would have been successful in most cases. Unfortunately, as before stated, so early an operation is impracticable, for in our experience the first symptoms in severe cases are caused by contact of the infected and infecting appendicular area with the contiguous peritoneum, and no operation can be early enough to prevent in such cases the local contamination. Nevertheless, it seems to us proved that the earlier the operation, up to a certain time — say to the second or possibly the third day — the lower the mortality.

The statistics throwing light on this question are not convincing: for example, in 180 acute cases treated medically 31 died, a mortality of 17 per cent. — a lower mortality than that after the operation in acute cases. But some of these 31 cases, fatal under medical treatment, might have recovered after operation. On the other hand, of the 63 fatal cases operated upon a considerable number died which in all probability would have recovered under medical treatment. The truth is that, had all these cases been seen by experienced surgeons in the first or second day, practically every fatal case would have been operated upon at a time when there would have been a strong probability of cure. But furthermore, on the other hand, a certain number of the successful cases not operated upon would have been hastened to their death; and a certain number would have been drained late in the period of safety; for it must not be forgotten that many a case proves fatal before aid is called, and that the late operations are successful in a large ratio, because the cases, being "the fittest, have survived" the dangers of the early and critical days.

The cases in which a wrong diagnosis was made have an exceptional interest, because it is generally thought that the diagnosis of appendicitis is easy. In most cases it is easy, but at times a correct differentiation is impossible. A lesion sometimes mistaken for acute appendicitis is acute cholecystitis. The gall-bladder when acutely inflamed and so placed that it cannot be felt causes symptoms which resemble closely those of acute appendicitis with intestinal obstruction. We have in three cases made so positive a diagnosis of appendicitis as to make the appendix incision, only to find a normal appendix. Further search has revealed an acutely inflamed gall-bladder. An occasional source of error is in the ileo-cecal tumor of tuberculosis or malignant disease. A blood-count will usually solve the problem, but for obvious reasons this is at times impossible. Acute obstructions unaccompanied by tumor or other characteristic signs may lead to an erroneous diagnosis of appendicitis. In most of them a constricting band has been found.

(To be continued.)

"PHOSSY JAW" is the English slang for phosphorus poisoning, cases of which have recently occurred in some of their large match factories.

ARMY MEDICAL ORGANIZATION.

BY JOHN VAN R. HOFF,
Lieutenant-Colonel, Chief Surgeon, Third Army Corps.

[The following circular, which has been issued for the information and guidance of the medical officers of the Third Army Corps, at Chickamauga, gives the fullest and most detailed account of the organization of an army medical corps which has yet come under our notice. It is of such interest to our civil as well as military readers at the present time that we publish it in full. ED.]

CIRCULAR NO. 1.

HEADQUARTERS THIRD CORPS, OFFICE OF CHIEF SURGEON, CHICKAMAUGA PARK, JUNE 19, 1898.

THE following is published for the information and guidance of the medical officers of this corps, namely:

1. The Regimental Dispensary, as its name implies, is intended for the treatment of trivial cases only. All serious cases must be sent to the divisional hospitals. Every case excused from any duty whatsoever must be entered in the regimental register of sick and wounded and continued on that register, whether the patient be treated in quarters or division hospital, until it is disposed of by return to duty, discharge, death, desertion or transfer to a general hospital. It is of the utmost importance that this register be kept accurately, and that the report of sick and wounded, which is based upon the register, be rendered promptly, in which connection particular attention is invited to the "Directions for Preparing the Register of Patients" recently distributed to each regimental surgeon. This report must be rendered to this office within five days after the expiration of the month for which it is made.

2. The Regimental Hospital Stewards will ordinarily be mustered with their regiments. The private of the hospital corps on duty as orderly will be mustered with the ambulance company of his division.

3. In addition to the duties prescribed in Circular No. 3, Surgeon-General's Office, May 18, 1898, for regimental surgeons, they should instruct the officers of the regiment in first-aid and the prescribed methods of transporting the wounded. (See General Orders, No. 60, Adjutant-General's Office, Washington, D. C., Series of 1897.)

4. The Field Division Hospital, which is in effect made up from the different regimental hospitals, is the central medical feature of the division, and upon its effective administration depends the success of the medical department. It should be organized in three brigade sections in such a way that one or more sections may be readily detached without destroying its entity, and so far as practicable, the sick of each brigade should be assigned to its designated section. (See Paragraph 9.)

5. The duties of the medical officer commanding such a hospital are sufficiently outlined in the above-referred-to circular. Next to the care of the sick his most important duties lie in the keeping of the records, and the making of reports as prescribed in regulations and orders. The men of the hospital corps under his command look to him for subsistence, clothing, pay and instruction, which he is under obligations to see that they receive. In supplying the entire division with medical supplies, and in anticipating future requirements in this direction, care is demanded.

6. The Division Ambulance Company, in camp, furnishes transportation for the sick and such other assistance as may be required of it by proper authority. It is essentially a company of instruction to which all the men of the hospital corps in the division,

except those attached to the field hospital, belong. On the march, it becomes an ambulance hospital, furnishing shelter as well as treatment for the sick. On the field of battle, it organizes the dressing and ambulance stations, it collects and transports the wounded from the field, and oftentimes acts in place of the field hospital when the latter fails to reach the battlefield. The function of this organization is exceedingly important, and in our service is yet largely undeveloped. The interior economy of the ambulance company is practically identical with that of a company of the line. (See Paragraphs 264 to 286, inclusive, Army Regulations, 1895.) The standard of an ambulance company in celerity of movement, care of equipment, instruction of men, and general "smartness" should equal that of a light battery of artillery in the regular establishment.

7. The 28 saddle horses at present allowed to a division will until further orders be distributed as follows, namely:

Hospital steward at division headquarters, 1; orderlies (1 for each brigade surgeon, 1 for each medical officer with regiment), 13; field hospital (trumpeter, senior N. C. O., transport N. C. O., assistant transport N. C. O., commissary N. C. O., 1 each), 5; ambulance company (quartermaster, senior N. C. O., acting Q. M. sergeant, transport sergeant, acting commissary sergeant, trumpeter, 1 each; orderlies 3), 9.

The remaining non-commissioned officers and men of the hospital corps will march. The field hospital forms part of the advance (fighting) train, and the ambulance company is distributed (by brigade section) throughout the division.

8. In addition to the six medical officers attached the field-hospital detachment numbers 99, and the ambulance company 114 enlisted soldiers. Both of these organizations are divided into brigade sections, each capable of independent action. Lieutenants of the line, detailed under the provisions of Paragraph 2, General Orders No. 76, Headquarters of the Army, A. G. O., current series, are attached to the field hospital and ambulance company, respectively. They act as quartermasters for their organizations. The combined divisional medical organization is in effect a battalion, under the immediate command of the division chief surgeon.

9. Besides the subdivision of the field hospital into brigade sections, it is divided into the medical and transportation departments, a train of 17 four-mule wagons being required for the latter.

Its personnel is distributed as follows:

1 medical officer (commanding), 5 medical officers, 1 quartermaster (lieutenant of the line), 6 hospital stewards, 3 acting hospital stewards, and 90 private soldiers (hospital corps).

Of this number, 1 quartermaster, 2 hospital stewards (as trainmaster and assistant), 1 blacksmith, 1 artificer, 1 cook, and 17 drivers are assigned to the transportation department. In camp the quartermaster is the police officer.

The remaining personnel, except the commanding officer (who supervises everything), pertains to the medical department of the hospital, and the duties are distributed as follows:

1. Executive officer, who is in effect the adjutant of the organization: he aids in the work of supervision, has charge of all the records of the hospital, and all public property, except that pertaining to the quartermaster's department.

2. A medical officer is assigned to the special supervision of the subsistence department of the hospital; he superintends the drawing and issuing of rations, the keeping of accounts, the issue of special stores, etc., which, however, with skilled assistance, will take but a portion of his time.

These officers usually remain with the hospital, whether operative or not. The other medical officers are assigned in charge of the wards and operating tent, and do such other additional work as may be necessary. (See Circular No. 3, Surgeon-General's Office, May 18, 1898.) When the hospital is inoperative they may be temporarily attached to the ambulance company, which then becomes the ambulance hospital.

The non-commissioned officers and privates will be distributed as follows:

1 hospital steward, senior non-commissioned officer, whose duties are essentially those of a first sergeant; he looks after the management and material requirements of the 99 men of the organization:

1 hospital steward in charge of dispensary, 1 in charge of mess, 1 in charge of property, 1 in charge of wards; 1 acting hospital steward in charge of records, 2 on duty in wards; 1 private on duty as clerk, 1 on duty in property department; 35 on duty as nurses, 2 on duty as cooks, 2 on duty as assistant cooks, 2 on duty as cooks' police, 26 on duty as police, special details, guards, etc.; 1 trumpeter.

The ambulance company is also divided into medical and transportation departments. Its wheel equipment consists of 25 ambulances, and there is a train of 4 wagons. Its personnel is distributed as follows:

1 medical officer (commanding), 5 medical officers, 1 quartermaster (lieutenant detailed from the line), 7 hospital stewards, 3 acting hospital stewards, 104 privates (hospital corps).

Of this number, 1 quartermaster, 1 hospital steward (Q. M. sergeant), 7 privates (4 drivers, 1 cook, 1 blacksmith, 1 saddler), are on duty with the train, which marches with the ambulances.

The remaining personnel pertains to the medical department, for, as has been stated, the ambulances form the hospital of which the drivers and orderlies are an essential part. The duties are distributed as follows:

1 medical officer (commanding); 1 executive medical officer; 1 subsistence medical officer; 3 medical officers (one to each brigade section) in charge of patients (additional medical officers and hospital corps men may be attached from the field hospital during the march if such be found necessary); 1 senior N. C. O. (first sergeant); 5 hospital stewards (2 ambulance sergeants, 1 dispenser, 2 bearer sergeants); 3 acting hospital stewards (1 commissary sergeant, 1 assistant ambulance sergeant, 1 bearer sergeant); 97 privates (1 trumpeter, 1 cook, 25 ambulance drivers, 25 ambulance orderlies, 40 litter bearers, 5 orderlies).

The Dressing Station party consists of

2 (or 3) medical officers; 4 non-commissioned officers; 15 attendants; 2 cooks; 2 orderlies.

The wagon-train rendezvous here and the personnel may be utilized.

The Dressing Station is divided into three sections:

First Section (for slightly wounded). — 1 medical officer, 1 acting hospital steward (clerk), 7 attendants.

Operating Section. — 2 medical officers (or more), 1 hospital steward, 6 attendants.

Mortally Wounded Section. — 2 attendants (a chaplain may well be here).

Dispensary Kitchen. — 1 non-comissioned officer, 2 cooks.

As soon as the dressing station is formed the rest of the company moves forward and establishes an ambulance station at the farthest point to the front, at which the ambulance wagons rendezvous, and between which and the dressing station they are constantly plying. Each ambulance has a driver and orderly, and a box beneath the driver's seat in which are carried beef extract, tea, sugar, hardbread, etc., and every fifth ambulance, which must be especially marked, will carry surgical supplies, as anesthetics, anodynes, antiseptics and dressings. Each ambulance should carry an axe, two hand-litters, two lanterns (one red), and a galvanized iron pail.

Ambulance Station party: 1 medical officer (if possible), 1 non-commissioned officer, 1 private, 1 orderly. Remaining officers and men — 2 medical officers, 2 hospital stewards, 1 acting hospital steward, and 24 privates, with 12 hand-litters — are divided into two platoons, and go out to render first aid, gather up, and bring in the wounded. When the work of collecting is completed, the company rendezvous at the dressing station, and when the work there is accomplished, and the wounded transferred to the field hospital by the ambulances, the company goes into camp near the hospital.

The field hospital is evacuated to the rear as rapidly as possible, so that it may be free to move with the troops.

As under the provisions of the Geneva Convention the personnel of the medical department is neutralized, if unarmed, nevertheless, as it is necessary to preserve order at a place where large numbers of unruly people are sure to congregate, a provost guard must be detailed from the line to maintain order and prevent interference with the work of the dressing station and hospital. If this is not done arms should be issued to the hospital corps.

The medical equipment of the ambulance company is not officially prescribed, but is indicated by its special functions. All experience has taught that the pannier, or chest, is the most convenient form in which to carry the field medical equipment. The field supply table provides a very meagre outfit, which certainly will not meet the requirements of the situation, and must be supplemented from the hospital supplies, for, as has been stated, the dressing station will often substitute the field hospital. It is directed that in this corps the following equipment will be taken, if obtainable:

6 medical chests, Nos. 1 and 2; 6 surgical chests, Nos. 1 and 2; 3 sterilizing chests; 1 operating table; 3 field operating cases; 6 boxes containing 12 gross gauze bandages, 3 gross plaster bandages; 66 rubber bandages, 36 suspensory bandages, 20 kilogrammes sterilized absorbent cotton, 1,000 packets first aid, 1,000 packages sublimated gauze, 200 packages iodoform gauze, 600 packages sterilized catgut ligature, 600 packages sterilized silk ligature, 30 metres unbleached muslin, 20 kilogrammes oakum, 20 packages common pins, 20 dozen safety pins, 50 spools No. 1 adhesive plaster, 12 spools No. 2 adhesive plaster, 8 metres isinglass plaster (1 metre rolls), 20 kilogrammes plaster-of-Paris (2 kilogramme tins), 10 metres rubber sheeting, 20 metres oiled silk (5 metre rolls), 60 pieces wire for splints, 60 boxes compressed cotton sponges, 6 Esmarch's tourniquets, 12 wash handbasins, 12 cases blankets, 150 gray blankets, 150 rubber blankets, 1 field desk, 200 bedsacks, 200 pillow ticks, 30 hand-towels, 12 brushes for cleansing, 6 agate buckets, 3 commode chests, 6 food chests (for dressings, etc.), 1 mess chest, 2 dippers, 6 lanterns, 20 hand-litters, 6 orderly pouches.

Two hospital tents, complete, should be taken for use as dressing and operating tents.

Each man of the ambulance company and hospital corps detachment will be equipped as follows:

1 pouch, H. C.; 1 litter sling; 1 waist-belt and plate; 1 haversack complete; 1 canteen complete; one-half shelter-tent, with 1 pole and 5 tent-pins, in which is packed the clothing prescribed in Paragraph 199, Drill Regulations, H. C. He will wear the prescribed uniform and leggings.

The duties of Brigade Surgeons and of the Chief Surgeons of Divisions are sufficiently outlined in Circular No. 3, Surgeon-General's Office, May 18, 1898. These officers are of great importance, and upon their devotion depends to a large extent the successful administration of the division.

As medical officers as well as the enlisted soldiers of the hospital corps are in need of instruction in what may be called the military features of their work, division chief surgeons will organize schools of instruction for their officers, in which they will be carefully taught in the duties pertaining to their positions, from text-books and papers prescribed in a letter addressed to division chief surgeons, dated June 9, 1898 (also G. O. 58 and 76, current series, Headquarters of the Army).

Schools for non-commissioned officers, and privates of the hospital corps, with regiments, will also be organized, in which they will be instructed in the making out of the various reports, the keeping of the required records, etc.

The instruction in the field hospital and ambulance company must be of the most complete character, covering all points requisite to the making of a thorough sanitary soldier.

Finally, it should be remembered that the field hospital and ambulance company must be as mobile as the command to which they are attached, and no effort should be spared to place both of these organizations in condition to move at an hour's notice.

SOME MODERN METHODS OF THE TREATMENT OF PHTHISIS, AND ITS SYMPTOMS.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

THE awakening interest in the treatment of phthisis so evident at the present time throughout the medical world is inspired, I think, by two facts: first, the establishment of the unity of the disease through the discovery of the tubercle bacillus; and, secondly, a deeper realization of its curability.

Both pathological and clinical evidence afford abundant proof that pulmonary tuberculosis is susceptible of cure by nature, either assisted or unassisted by art. This fundamental fact, clearly and fully realized, has stimulated the profession to study anew the causes and conditions of the disease, the means of its prevention, and its treatment when existing. Of its causes and prevention I have spoken elsewhere.[2] It is my purpose in this paper to outline some of the modern

[1] Read before the Massachusetts Medical Society, June 8, 1898, and recommended for publication by the Society.

[2] The Pray prize essay of the New Hampshire Medical Society for 1897.

methods of treatment, which at present produce the best results.

As the two factors, the infecting germ and a favorable soil, must coexist to produce the disease, so the treatment has consisted either in attempts to destroy the tubercle bacillus or imprison it; or in transforming the favorable into an unfavorable soil; or a combination of these two lines of attack. All attempts made to destroy the bacillus *in situ* have thus far, as we know, proved futile. What serum therapeutics may accomplish in this disease in the future we cannot say, but the antitoxins have produced such brilliant results in other infectious diseases that we may be hopeful that eventually the tubercle bacillus may meet its fatal foe from some such source. Meanwhile, we have the other line of attack left us, namely, to develop and strengthen the resisting power of the consumptive until his pulmonary tissue presents no longer a favorable soil for the infecting germ. This is the plan universally adopted by the leading phthsio-therapeutists both here and abroad, and it has produced the best results yet attainable. It is all included in "rest, extraordinary feeding, and a life in the open air; mental and bodily rest,[3] overfeeding of a fearless and heroic description, and perpetual fresh air."

The bare statement of this method makes it seem simple enough, but the detail of its accomplishment, however, demands strenuous exertion, a determined will, and great patience both on the part of the patient and the physician. An exact and rigorously adhered to plan of life is required, and nothing must be left to chance or the caprice of the patient. I believe it is always best to tell him plainly his condition, and the treatment demanded, and thus obtain his co-operation in our efforts. He must realize that whatever in his former habits interferes with the new plan must be abandoned. He is like a settler in a new country; a new life and environment is before him requiring changed life habits, and he is to realize that not what enters into his body medicinally is to have much effect upon his disease, but what goes in as food and air is mainly to decide the issue.

The best results from this hygienic-dietetic treatment are undoubtedly obtained in closed institutions or sanatoria, in whatever climate they are situated, because in such institutions the management of the patient's life can be more exactly and continuously affected when constantly under the eye of the physician; and further, he has the advantage of the equipment there existing for the special treatment of this disease. Much, however, can be accomplished outside of a sanatorium, even at the home of the patient, and when he is compelled to follow some occupation. The main elements entering into the hygienic-dietetic method are:

(1) Out-door life in a pure air, free from dust and smoke.

(2) Abundant alimentation, consisting of properly selected and prepared food, rich in fats and carbohydrates.

(3) Rest or exercise, or both according to the individual condition.

(4) Hydrotherapy. And supplementary to these:

(*a*) Such general medication as from time to time seems to be useful in co-operating with the above measures.

(*b*) Symptomatic medication, to relieve any symptom which interferes with the general plan, and which cannot otherwise be removed.

[It is well to repeat that all medication is simply subsidiary to the open-air and food treatment, and occupies the place of least importance.]

The open-air treatment is such a radical departure from the former notions regarding the management of the disease that it is difficult at first to convince the patient and his friends of its importance, and the thoroughness of its execution, as well as to disabuse him of his fears of such constant exposure to the weather. Not an hour or two a day out of doors on pleasant days is meant, but whole days, and day after day are to be spent in the open air, in cloud or sunshine, warm or cold, stormy weather alone excepted; and at night the windows should always be open in the sleeping room. This cannot all be accomplished at once, especially with those who have been accustomed to an indoor life, as have most consumptives. They must be gradually hardened and trained to it; an hour or two a day at first, and on pleasant days. Gradually these out-of-door exposures can be increased and less regard paid to the weather and variations of temperature, until there will be but few days unavailable for the treatment.

The question naturally arises as to the climate in which this plan can be pursued. Are not especial climatic conditions necessary? and are we not obliged to send our patients away to find them? Of course, some climates are admittedly more favorable than others; as, for instance, those of the high altitudes, which possess especially desirable characteristics; but, as Dettweiler says, "in the treatment of phthisis there does not exist either specific means or specific climate. Phthisis is curable everywhere, in every climate." Wherever one can obtain pure air free from dust and smoke, protection from sharp winds, and a fair number of sunny days, there the free-air treatment can be carried out, and outside of the cities and manufacturing towns one can almost anywhere in our State find these conditions. "Even in the midst of large towns," as Weber says, "the air in open spaces and even in the streets is very much purer than within the houses." Moreover, such a dust-free atmosphere utilized in a methodic and continuous manner will produce results, I believe, comparing favorably with those in the well-known so-called health resorts. The climate of Falkenstein, for instance, possesses no very great advantage over that in many portions of New England; it is variable, has frequent rains, and the proportion of sunshiny days throughout the year is not extraordinary; and yet the results obtained compare favorably with those of other sanatoria more advantageously situated climatically. The secret is in making the most of such climatic conditions as are available, and thoroughly realizing the inestimable value of pure air in the treatment of phthisis. "If indeed pure air," says Dr. Henry MacCormac, "were a thing of price, of fictitious price I mean, for otherwise it is priceless; if people had to dive for it into the sea depths, or grovel for it in the mine, then would they value and appreciate it." The effect of the open-air treatment is striking; there is a gradual reduction of fever, a gain in appetite and weight, sleep is improved, and night-sweats diminished; cough, which may be temporarily increased, is in the end lessened, and there is a

[3] Treatment of Consumption. Harris and Beale, 1895, pp. 376-379.

sense of comparative well being, and improvement of spirits. I am well aware that in private practice it is far more difficult to establish and maintain this open-air treatment than in the sanatoria arranged for the purpose, but with a little ingenuity and persistence it can be approximately accomplished, I believe, in most cases.

As the life in the open air must be principally one of rest, some spot must be selected, preferably facing the south, where the patient can recline upon a deck or reclining chair, and be protected from the wind and rain, — for a moderate rain does not contraindicate the treatment. A veranda with movable curtains at the sides; a small light wooden hut or shed, that can be easily transferred from one place to another, and turned around according to the direction of the sun or wind; a tent with a raised wooden floor, and curtains capable of being open or shut; an awning on a house-top; a hammock under the trees, are some of the contrivances by which this may be accomplished. The environment of each individual case will suggest others. The recumbent position is preferable for several reasons: the feet and legs can be better protected with wraps, and even hot-water bottles in cold weather; the circulation of the blood in the lower extremities takes place more easily, and, according to Volland, the blood supply to the apices of the lungs is increased, thus favorably influencing the nutrition of the diseased parts. As one becomes habituated to this open air exposure, he will pay less regard to variations of temperature and but few weather conditions will prevent it. In the Continental sanatoria it is carried out in summer and winter, in rain and snow; high winds being almost the sole weather contraindication. The question might be asked, Why is not a large well-ventilated room with an open window as good? A moment's reflection, I think, will satisfy one that a patient cannot be so continuously bathed in fresh air indoors as out, even in the best ventilated room — the one is aëration, the other hyper-aëration. Then, again, the out-door air is purer than it can be in any living room.

I have said that the life of the consumptive out of doors must be principally one of rest, and this is especially true at the beginning of the treatment. The general system is in a depressed condition, the circulation poor, and the heart inadequate for its work. Rest, mental and physical, and abundant and nutritious food, with as little expenditure of vital force as possible, are the measures indicated, and will best aid in forming fat and blood. Much exercise is a mistake, I believe. The experience of the Dettweiler system of uninterrupted rest, continued for months, has abundantly vindicated its value.

With febrile cases rest should be the invariable rule admitting of few exceptions; for experience has proved that rest either in the open air or in a well-ventilated room with open windows is the quickest and most certain way of subduing this symptom. At the sanatorium of Hohenhonnef the fever patients are not even allowed to lie out in the reclining chairs for fear the moving might aggravate the fever. This matter of absolute rest for febrile cases of phthisis I have seen so often disregarded that I desire especially to emphasize it. When the fever is intermittent, and the morning temperature is normal, a limited amount of exercise may be advisable, but such cases should be under careful observation. Afebrile cases can, as a rule, take a certain amount of exercise, depending largely upon the condition of the heart. This should not be so severe or prolonged, however, as to exhaust the patient or produce dyspnea or excessive perspiration. The kind of exercise will depend somewhat upon the environment and available conditions, but walking either on the level, or up gentle ascents — Brehmer's "hill climbing" — is the simplest and most free from injurious effects, and can, moreover, be easily regulated. The physician should determine the amount and not leave it to the judgment or caprice of the patient.

Whatever form of exercise is adopted, deep breathing or lung-expanding movements should constitute a part of it. The "breathing tube" is serviceable for this purpose, permitting a free, full inspiration, and an impeded, gradual expiration; or one may simply stand erect with the hands on the hips and take slow, deep respirations. The chest expansion may also be assisted by arm movements in either the erect or recumbent position. As with all else connected with the hygienic-dietetic treatment, these breathing exercises should be taken regularly, so often, and so many times. Of course, if the discretion of the patient can be relied upon, various other forms of gentle exercise, depending upon his condition, may be useful as combining with the exercise pleasurable diversion, or in the form of some light occupation, such as gardening, driving, or other work upon the land. It must be borne in mind, however, that all this applies to afebrile cases.

If the impossibilities of establishing an out-door life at or near the home of the patient, appear insuperable, which I believe will not be so often the case as one might at first think, then a change of residence is demanded which will render this attainable. Wherever the patient goes he must be under careful and constant medical supervision and be thoroughly imbued with the significance of the open-air treatment; however admirable the climate, it must be utilized to the fullest extent in order to realize its beneficial influences. Continuous out-door life is the only one for the consumptive, for him it *is* life. This is not the place to consider the different climates applicable to phthisis. I will only say that experience so far has proved that the medium or high altitudes have produced the best results, largely I am inclined to think because they afford the purest air; but it is well to repeat again here Dettweiler's words, that consumption can be cured in any climate.

FOOD.

Of equal importance with the air treatment is the feeding of the patient. "Air and food both of the best quality possible are the most potent factors in treatment." An abundance of nutritious, easy assimilable food, containing a due proportion of proteids and carbohydrates, and rich in fats, is required. Brehmer attached great importance also to all kinds of vegetables. Much attention must be given to the quality and preparation, as well as to the method and time at which the food is to be taken. There should be frequent variety, adapted to individual taste and condition, and the service should be such as to render it appetizing and attractive. Experience has shown that the amount of food required can be best taken by frequent small meals, generally five a day, arranged somewhat as follows: At seven or earlier, a glass of warm milk in bed or while dressing, with a spoonful or two of brandy or limewater if indicated. At 7.30 to 8, breakfast, consisting of tea, coffee or cocoa, bread and butter, bacon,

fish, poultry or meat. At 10 or 11, a glass of milk or a cup of broth or beef-tea, or a sandwich and a glass of wine. At 1 or half-past, dinner, consisting of soup, meat or poultry, or fish or game, with fresh vegetables and a light pudding or fruit. Also alcohol in some form may be allowed at this meal, if the physician considers it desirable. At 4 o'clock, a glass of milk or a cup of tea or coffee with much milk, or bread and butter or rolls. At 7, supper, with one or two courses, and vegetables, similar to the meal in the middle of the day. At 9 or 10 on going to bed, a glass of milk, or bread and milk, or milk with some farinaceous food like oatmeal porridge. If milk alone is taken at this meal two or three teaspoonfuls of brandy may be put in it. In pyrexia the nourishment must contain less solid food and be taken more frequently. It is not enough to dismiss the matter of diet by telling the patient to eat all he can of good food; in that case we may find he is taking but very little nourishment, his appetite may be lacking, the digestion impaired, so that at the time when he most needs to be fed we shall find he is taking the least food. We may aid the appetite and digestion by some temporary simple medication, although generally the out-door life will prove the best tonic. By persuasion we can induce him to take a little, and this will increase the desire for more. Sometimes we must insist that a stated amount of food must be taken. The fancies of the patient can sometimes be followed to advantage. Good cooking and attractive service also aid materially. By ingenuity, constant attention and insistence, and frequent and small feedings, we can generally succeed in having our patients take a liberal amount of nourishment, a much larger quantity than at first seemed possible. It is well to bear in mind that the digestive powers of a consumptive are often greater than the appetite indicates. Periodic and frequent weighing of the patient will indicate the success or failure of the method of feeding adopted.

Milk, either as such or in the form of koumiss or kefir, or when it constitutes the principal ingredient in some of the various "foods," is a most valuable adjunct to other kinds of nourishment, and in certain conditions, such as gastro-intestinal disturbances, may form the entire diet. It can be made more digestible and agreeable by adding soda or some of the various alkaline mineral waters, such as seltzer or apollinaris, or a small amount of brandy; or a small quantity of coffee, tea or cocoa will render it more palatable in some cases, while in others it is best borne peptonized. Care should be taken that it is obtained from tested cows, or if not it should be boiled. When used with other forms of nourishment four or five glasses a day will be enough. In the so-called "milk cure," when it is the exclusive article of diet, as much as ten to twelve glasses are taken in the twenty-four hours. Its true office, however, I believe, is to supplement the regular diet.

Alcohol may be regarded either as a food or a drug, and practically it makes little difference how we look at it. Of its value in the majority of cases I am convinced, especially when fever exists. The method of administration and the daily dose must be determined by individual conditions. Regarding the form in which it should be used, it does not make so very much difference in my opinion. Dettweiler has a predilection for brandy diluted with water or milk. Whiskey can be used in the same way. Various wines, heavy or light, Hungarian, Port, Sherry, Tarragona, Rhine, Italian or California, can be used with the meals. Brehmer does not consider beer as adapted for consumptives. When the appetite is wanting, digestion enfeebled, the circulation poor, and pyrexia exists, alcohol in fairly large quantities is indicated, if it can be taken without discomfort, and will alleviate in a marked degree these symptoms. With patients, however, who rapidly increase in weight and blood tension, alcohol increases the liability to hemoptysis and is also dangerous for those who show a disposition to hemorrhage.

Cod-liver oil, which is sometimes classed with foods, sometimes with drugs, is, by a vast experience in its use, acknowledged to be the most valuable single nutritive agent in all the consumptive's dietary. "I have no hesitation," says Dr. C. J. B. Williams, "in stating my conviction, that this agent has done more for consumption than all other means put together." Of all the fats it is the most easily digested and assimilated, and can be tolerated by the majority of patients, and for long periods of time, if one begins its use cautiously, one or two teaspoonfuls a day. Wherein its peculiar efficacy resides, whether in the oil itself or something contained in it, is still undetermined. It seems reasonable, however, to suppose that the inorganic substances and biliary salts which it contains are largely influential in its easy digestibility and absorption, and hence rendering it more nutritive than any other fat food. At all events, it is surely a fact that a patient will gain weight from cod-liver oil when he can do it in no other way. Daremburg and others consider the darker colored oils more efficacious than the pale; the latter, however, are generally prescribed. The majority of consumptives can take cod-liver oil with benefit. There are, however, some contraindications, gastric or intestinal catarrh, diarrhea, and fever if high or continuous. When there is only a slight rise in temperature in the evening, a moderate dose can generally be taken. It is most valuable in the quiescent periods, and the least so or even sometimes harmful, in the active, when the degenerative changes are rapid. I always give it, if possible, alone, either directly after meals, or in two or three hours. It can be floated upon milk, coffee, whiskey, brandy, ale, porter or lemon juice. I have recourse to the emulsions only as a last resort.

The various malt extracts, so extensively used now, have a certain limited value, if not exactly as food, as an aid to digestion, and as a very useful vehicle for cod-liver oil. Of course, they bear no comparison in value to the latter.

Hydrotherapeutics, which occupies an important place in the hygienic treatment of phthisis in foreign sanatoria, does not seem to have been generally appreciated in this country, at least in private practice. By the hydropathic treatment the body is hardened, thereby giving it greater protection against cold; the circulation is accelerated and strengthened; the appetite stimulated; and tissue metamorphosis promoted. It is used symptomatically in pyrexia, night-sweats and various nervous phenomena. It consists of warm baths, ablutions, cold friction or sponging, the wet pack, and douches. Cold sponging is the simplest method, and if a chill is feared or the extremities are cold, the patient can stand in warm water and hold with both hands a hot pack to the pit of the stomach. (Ransome.) For cold friction the patient stands near the bed, stripped, and is wrapped in a sheet wrung out in

cold water; the whole body is then rubbed firmly and rapidly; the sheet is then removed and a dry one folded about him, and he is rubbed again, and then dresses quickly. The cold friction may be partial and applied while the patient is in bed.

The wet pack is applied while the patient is lying upon a bed covered with a blanket. A coarse linen sheet is wrung out in water of a temperature of from 70° to 50° F., and tucked about him, and this covered with a blanket. In this he remains from one-half to an hour, and it is well to have a window open while he is in the pack. Instead of the full pack certain portions of the body only may be included, as the trunk, the upper half, or the limbs. The end to be attained by the wet pack is to stimulate the skin activity and thereby relieve the congested thoracic organs.

Chest compresses consist in the application of napkins wrung out in cold water and covered by flannel. The Winternitz cross-band is extensively used upon the Continent in phthisis, and is said to relieve and lessen the cough, favor expectoration, and improve the respiration. It is applied by winding about the chest from one axilla to the opposite shoulder and reverse, a linen cloth or sheet wrung out in cold water until the whole chest, front and back, is covered, and then applying in like manner a dry flannel cloth. The cold douche, only applicable to mild cases with fairly good reactive power, consists of a rain or cascade douche from above, or a hose with a jet or sprinkler from the side. This is generally used in the morning under the immediate supervision of the physician, beginning with five seconds and gradually increasing to not over forty. The patient is then rubbed dry with a rough sheet.

Ablutions can be applied to all patients, and consist in bathing the body, especially the chest, front and back, with a sponge wet in water at the temperature of the room, and then rapidly drying it with a rough towel or horse-hair glove. In the case of night-sweats, diluted spirit or vinegar may be substituted for pure water. Ablutions are given in bed and generally in the morning. When the patient is feeble or neurasthenia exists, massage is useful.

In the hygienic treatment the clothing demands consideration especially while the hardening process of out-door life is being established. The tendency, not to say danger, is in wearing too much and too heavy clothing, especially about the chest. The capillaries of the skin are relaxed, excessive perspiration induced, thereby rendering the body surface more sensitive to changes of temperature. The under garments should be loose enough to allow a layer of air beneath them. "Inside our dress," says Pettinkoffer, "we should carry the air of the South wherever we may be. . . . We live in our dress like an unclothed tribe in a Paradisian country, where the air is constantly calm and the temperature from 75° to 94° F." Experience has proved that the innermost garment should be of wool of a weight adapted to the season, of light open texture, and loosely fitting. (Ransome.) Chest protectors belie their name and are a source of danger by rendering the skin of the chest more sensitive. "The best chest protector," says Ransome, "consists in well douching the chest night and morning with quite cold salt water."

(To be continued.)

THE form of the judicial oath known as "kissing the book," has been abolished in Maryland.

THE RELATION OF EPILEPSY TO OTHER DISEASES.

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THE relation of epilepsy to other diseases is so intimate, so interwoven and mutually dependent, as to cause and effect, that its separation is tedious, made more so by the constant changing of these relations; in cases it is impossible to tell where the epilepsy begins and the other disease ends.

Even before a child is born the very same factors may make its future heavily burdened with tendencies toward a dozen or more of ailments; and as the finer the mechanism of a structure the more readily does it become disarranged; thus do we have the selective cells of the kidney, of the liver, quickly giving way before an opposing force; this is equally true of the brain, for there we see first its more delicate attributes becoming clouded or obliterated.

The cerebro-spinal system as a whole being of more delicate structure than any other part of the body, we would, without thinking, expect its substance to suffer first at the onslaught of disease; but when we take time to consider, it comes to us that the brain and cord are better protected than any other organ, both by the structures about them, and by their own histological arrangement. Only through the minutest capillaries or by the finest of mechanical processes, osmosis, can a disease of the flesh touch the parenchyma of the brain or cord. But like the Quebec of Montcalm, its strength is also its weakness, the fortification is all on one side; the structural partial immunity of the central nervous system from acute diseases makes it particularly liable to degenerative processes, and makes reconstruction doubly slow, in some cases impossible.

It is also very evident that troubles having developmental origins, or such aids to their origins, will be found more often here than in the general body, such being the fact; and whenever we have developmental insufficiency or degenerative impairment of the neural matter, we are sure, relative to the extent and position of such defect, to have mental or nervous manifestations. And no matter how this defect is brought about, the evidences will ever remain the same for like position and amount.

Now it follows that the special disease arising from such or such defective nervous arrangement will be determined by the extent and quality of its basis. Destruction of one set of brain cells would give paralysis, of another amnesia, of broader areas dementia, while different degrees of the destructive process would give slight palsy, or slight forgetfulness, or perhaps slightly disarrange the delicate poise and equilibrium of the movements. Then why not have just a hint at vacuolation, or other equally obscure impairment of a certain group of higher control cells, or their fibrils, allowing the epileptic convulsion?

Let us speak of the part played hereditarily by other diseases. We find by statistics that epilepsy plays not so great a part in reproducing itself as is played by other diseases in producing it, but that is partly accounted for by the infrequency of procreation by epileptics. Being a disease largely of early life, its subjects are in a great measure precluded from marriage. On the other hand, where there is a chance for transmission by a parent, there is just as surely the opportunity for transmitting other diseases or weaknesses, and most likely from the very nature of the case, a

taint clings to both parents, for a perfect, as the world speaks, man or woman would not be likely to choose an epileptic partner; though the value of that observation is largely determined in each instance by the age at which the seizures begin. Alcohol and syphilis together play a far greater rôle in the production of epilepsy than does it play in its own continuance. Rheumatism and tuberculosis occur more frequently in the parentage, though fill comparatively lesser rôles in the causation, as they themselves are largely evidences of that general condition, and of circumstances, making epilepsy a possibility. The condition that is shown in the parent by tuberculosis, rheumatism, hysteria, and various other diseases if not in some way counterbalanced or checked, goes a step farther in the offspring, adding some of the functional neuroses to the family burden.

Alcohol and syphilis go so nearly always hand in hand, that it is difficult to touch the stigma of the one without noting the odor of the other; and each alike lowers the tone of mind and body, inviting, as it were, the attention of various mental and physical ailments. Among the troubles thus invited in the immediate subject are almost all the forms of nervous diseases; prominent in this category stand epilepsy and the many scleroses, being themselves probably closely allied in all the essential causative points.

Chorea and rickets are but by-products in this grand onslaught upon the human health, being, as well, unmistakable signs of the possibility of intervention by other troubles. And a profound nutritive perversion or any other long-standing depressant complication would be likely to bring to the front one or more allied affections, the choice often falling upon epilepsy, a disease peculiarly prone to a parasitic existence, attaching itself to those already burdened by other weaknesses.

It is clear that direct heredity plays but a small part in the production of epilepsy, but rather by transference do we see the chief damage accruing. By direct heredity we mean, of course, that parent and offspring are affected alike, and moreover that the parent is so affected at the time of conception of the child. While by transference is denoted that the parent be diseased other than is the child.

Now, heredity is often made to appear far more potent than is really the truth; in this manner, A. B., epileptic, maternal aunt epileptic, paternal uncle died of paresis, brother died in infancy of convulsions. It is easily seen that neither of these three relatives could in any way transmit to A. B., yet by serious observers such cases are quoted daily. It is only when the direct line of descent is affected that we can attach a blame to heritage. But from the very nature of the case, the possibility of the acquirement of any functional disease is either developmental or degenerative in origin; and epilepsy being essentially functional, as the term is generally accepted, it follows that the condition making it possible must be brought about either in a perverted or defective development, or by a degenerative process.

An evident fact is that any one of a host of diseases in the parent might thus handicap the offspring or even later descendant: syphilis, alcoholism, "neuropathic diathesis," tuberculosis, cancer, some types of insanity, and various others would tend that way; while a yet greater host in the subject itself would have the effect of producing a degenerated or arrested developmental condition giving the very same result.

It is sometimes asserted that epilepsy is entirely a disease of degeneracy; this cannot be unqualifiedly endorsed, and yet it is strongly tinctured with truth in a large majority of cases, though by no means in all. Unless, indeed, we broaden the term degeneracy to include all those cellular peculiarities that take origin either pre-natally or post-natally, but that would place us on very questionable ground.

Most interesting would it prove for one to trace a family tree from the seedling to the decay, watching the influence of environment, of the benefits and damages of new blood, more vigorous or more impoverished, as it adds a branch to the tree in marriage. We would see tendencies in one parent vitiated or enhanced by tendencies in the other, and the results of the union yet more modified in their future careers by environments.

In the notorious Jukes family in New York State this selecting and propagating of traits, both by breeding and by circumstances, has been closely observed, and the results found to be most startling. Cripples, moral and mental imbeciles, criminals and neurotics of all kinds crowd each into a mass of pitiful and abject humanity. And as we glance down the vistas of the ages how many noble and even royal pedigrees do we see dimmed — yes, even blotted from the book of time — by the blight of degeneracy. And in each instance is clearly seen epilepsy, ever eager to place its seal on the closing pages of a name. The great Cyrus left an imbecile daughter, an epileptic son and a cancerous daughter. The mighty name of Ptolomy, extinguished in the dying flame of Cleopatra's personality, was marred for twelve generations, in spite of the constant influx of new blood with almost each generation, by the dead weights of imbeciles, cripples and epileptics. And even in her son Cæsarion, the blood of the deified but epileptic Julius Cæsar could not withstand the fatal tendencies coming from both father and mother.

We might enumerate page after page of biographies showing that epilepsy is as well parasitic as peculiarly gregarious in its nature, lighting by preference upon victims already rendered helpless by long years of untoward conditions; in fact, it is rarely lonely, for it generally finds its various cousins busily sapping the life blood of the family into whose sphere it enters. And it is the duty of the neurologist to study those various and varying modifications making its entrance possible; for only by understanding, early recognizing and abolishing those conditions, can we hope to cope with this disease.

The point to be remembered most clearly is that epilepsy is never an *ipso facto* trouble, but its appearance must be aided and abetted by others; and that these other troubles are the real indicators for the commencing of the treatment. Persons showing these tendencies must be studied and cared for, and their offspring, should there unfortunately be any, should be doubly guarded hygienically, the slightest indication of a coming breakdown noted and corrected. Such a child should be guided carefully by and beyond all that legion of pitfalls, the inciting causes, without one of which no case of epilepsy could have its beginning.

We may feel assured that the time has nearly come when the epileptic condition, and even tendency, and not the seizure, will be first to receive our attention and the antagonism of our skill.

However, let us consider that at some future time.

Clinical Department.

RESULTS OF THE IMMUNIZATION OF FIFTY CHILDREN AT ST. MARY'S INFANT ASYLUM WITH THE ANTITOXIN OF DIPHTHERIA.

BY W. P. COUES, M.D., BOSTON.

DURING the latter part of February and March, 1898, an epidemic of diphtheria occurred at St. Mary's Infant Asylum, the origin of which was obscure.

It was decided, therefore, to immunize all the children in the house, and that no child should be admitted without receiving an immunizing dose of the serum.

The oldest child immunized was five years, the youngest one day. The serum was obtained from the Harvard Medical School, each bottle containing 10 c. c. of 1,000 units' strength. The largest immunizing dose given was 5 c. c. to the child of five years, the smallest ½ c. c. to the baby of one day. Children of six months to one year were given 4 c. c., those under six months 3 c. c. The injections were all given in the right axillary line. Most of the injections were made on March 22d to 24th; after this, each new child was immunized as it came in.

The older children were not affected in the least by the injections, playing as usual as soon as the dressing had been applied. The infants, on the contrary, were restless and cried for a considerable time after the injections. The temperature of three infants reached 101° five hours after the injections; the next morning two were at normal, and the third 99.5°. On the morning following the injections the younger children in the upper ward all had slight coughs; this was not noticed in the older children injected. The cough passed away in two or three days.

Urticaria occurred in 14 cases out of the 50 injected; it proved a late manifestation, occurring from nine days to two weeks after injection. A punctate erythema of brief duration occurred in two cases out of the 50 injected. In one case there was soreness and pain in the right knee-joint; this passed off in two days.

From February 15th to March 22d, 18 cases of diphtheria had occurred. From March 22d, the date the injections were begun, for a period of nearly three weeks, no cases of diphtheria occurred. At the end of this time the children were not immunized again. Cases of diphtheria began immediately to occur, and continued until all the children in the house were immunized again.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY FRANCIS S. WATSON, M.D., BOSTON.

SURGERY OF THE KIDNEY.

IN the *Lancet* of April 17th and the two succeeding numbers, are to be found the abstracts of three Hunterian lectures upon the above subject by Henry Morris, which are instructive and interesting. They begin with a short sketch of the history of this branch of surgery, in which the author traces the gradual evolution of the various renal operations, the establishment of nephrotomy, nephrectomy, and nephrolithotomy. The origin of nephropexy, partial excisions of the kidney, and the recent progress in the surgery of the ureter, are similarly outlined. The growth of the conservative tendency in renal surgery and its dependence upon the success of ureteral operations are shown. The writer predicts and urges a still further restriction of the practice of nephrectomy.

In the second lecture (*Lancet*, April 23d), renal calculus is dealt with in detail; it contains also an instructive study based upon observation of 44 cases of conditions simulating renal calculus and submitted to exploratory operation, which showed the absence of calculus, and in the large majority of cases revealed other conditions which explained the symptoms. Among these were movable kidney, a greatly congested kidney (the venous blood being retained because of the distortion of the veins at the hilum, or caused by pressure upon the vessels by tough perinephric cellular tissue), ureteritis, tuberculous disease, perirenal adhesions, suppurative cysts, renal and perirenal tumor. In a few cases the exploration showed no satisfactory cause for the symptoms; and these cases in the absence of more definite knowledge, one is obliged to designate as instances of nephralgia. Attention is called to instances of nephralgia which have been attributed to malarial poisoning, and of hematuria from the same source which have been described by Kirkham and Tiffany respectively. The latter part of the lecture deals with the subjects of unsuspected, quiescent, and migratory calculi, and ends with a number of conclusions, amongst which the following views are expressed:

The application of nephrolithotomy should be extended, and nephrotomy and nephrectomy restricted.

The theory that stone in one kidney, whether that kidney is painful or not, transmits pain to the opposite kidney is wholly unproved. Exploratory operations should always be made on the painful kidney in cases in which there is one-sided pain only.

Unsuspected renal calculi are very dangerous to their possessors, and when by systematic urinary examinations their presence is strongly suspected, operation for their removal should be promptly undertaken regardless of the absence of pain; and the same rule should be observed with regard to quiescent calculus.

The teaching that renal calculus with mild symptoms of recent date is to be treated expectantly, should be discarded. When its presence is strongly suspected, it should be searched for by exploratory operation, and, if found, removed.

The writer describes the technique of the operation for exploring the kidney and ureter. The incision ordinarily used by him begins an inch above and in front of the anterior superior iliac spine, and extends outwards and backwards to the outer edge of the erector spinæ muscle, about a finger's breadth below the last rib. The incision is lengthened more or less according to varying conditions, for example, the skin incision may be prolonged from the upper end of the cut, a short vertical incision may be carried upward from the upper end of the incision over the back of the twelfth rib, which is useful in facilitating the excision of the rib if required. More room may also be gained by incising slightly the outer edges of the quadratus lumborum. If more space is required anteriorly for exposing the course of the ureter, stopping hemorrhage, etc., the lower end of the incision may be pro-

longed downward, toward and then parallel to Poupart's ligament, about one inch above, as far as the internal abdominal ring if need be.

The kidney should be thoroughly freed from its attachments and brought outside the wound whenever it is possible. The pedicle of the kidney should then be compressed between the finger and thumb of the left hand, and the incision into the kidney should be made upon its convex border. The calyces are then explored through the wound by the finger.

Needling the kidney to detect calculus is unreliable, and should be discarded. In all cases the ureter should be explored by passing a catheter through it from the renal pelvis. If its orifice cannot be readily found through the kidney wound, a very small incision should be made in the posterior surface of the infundibulum and the ureter explored through this opening. Caution is given against cutting the renal vein through mistaking it for the pelvis.

Appended to these lectures is a table of Mr. Morris's nephrolithotomies in detail, and short abstracts of two other tables, containing, with the exception of the last one, a series of kidney cases operated upon by him. From these tables the following data are taken:

Nephrolithotomies, 34 cases, 1 death (sinus persisted in five cases).

Nephrotomies for calculus, 44 cases, 11 deaths.

Nephrectomy for stone, 18 cases, 5 deaths.

Exploratory operations, 42 cases, 2 deaths. Relief of painful symptoms occurred in all but seven. These operations were undertaken for cases simulating calculus, none being found. They show the large percentage in which relief may be expected from this operation in various other renal conditions in which the diagnosis has been that of calculus, or has not been possible prior to operation.

Nephropexy, 57 cases, 0 deaths. In one case only did failure to relieve occur.

Nephrotomy, nephrectomy, and partial resections for tuberculous disease of the kidney, 28 cases, 5 deaths from operation, 4 subsequent deaths from tuberculosis of other organs.

Nephrectomies for fistulæ, etc., 5 cases, 2 deaths.

Operation for hydronephrosis and pyronephrosis (nature of operation not specified), 20 cases, 3 deaths.

Operations for tumors of the kidney, 15 cases (1 retroperitoneal), 5 for cystic disease, 9 for malignant disease. One case of cystic disease died, and three of malignant disease following operation; two more of the latter died subsequently from recurrence.

Injuries of the kidney, 4 cases, 0 deaths. In two of them exploratory operation was done, in one nephrectomy, and in one ureterectomy.

The last table consists of 49 cases collected from various sources of calculous anuria in which operation was performed for this condition, of these, 25 died. Attention is called to the great mortality of this condition when left to itself.

OPERATIONS ON THE KIDNEY WITHOUT DIVIDING THE MUSCLES, ETC.

Mayo Robson,[1] describes a method of exposing and operating upon the kidney without the division of muscles, vessels or nerves. The operation is carried out in a similar manner to that advocated by MacBurney for appendicitis, and, as the writer states, it has been already practised by Abbe of New York, who applied it in doing a nephrectomy.

The division of the muscles is avoided by splitting them in the direction of their fibres instead of cutting them across; the incision begins on the inner side of the anterior superior spine of the ilium and is carried upward and backward obliquely toward the tip of the last rib. Fibres of the external oblique and its aponeurosis are split and retracted; the internal oblique muscle is then split in a line between the ninth costal cartilage and the posterior superior spine of the ilium. When the fingers are pushed through the internal oblique so split, the fibres of the transversalis are pierced and can be retracted along with the former. When this is done, the transversalis fascia is exposed; this is incised, and the perirenal fat is reached; upon separating this, the kidney is laid bare. If the pedicle of the kidney is moderately long, the latter can be brought out through the wound and its interior explored through an incision in its posterior border, or otherwise operated upon according to circumstances; if calculus is removed, the kidney wound is sutured. After cleansing the field of operation, the retractors are withdrawn, when the separated muscles at once fall together and close the wound. Its apposition may be further secured by the insertion of a few catgut sutures. The skin wound is then closed. Ordinarily not a single vessel ligature will be required. The advantages claimed for this method are: (1) that there is no division of the muscles, and hence no weakening of the abdominal wall; (2) no vessels are divided, hence time is saved and healing *per primam* made more likely; (3) no nerves are divided; (4) the operation is done with the patient lying on the back; (5) convalescence is shortened.

[1] Lancet, May 14, 1898, p. 1315.

A RECENT SERIES OF ONE HUNDRED OPERATIONS FOR STONE IN THE BLADDER.

Freyer, in the same number of the *Lancet*, p. 1319, briefly refers to the results of the above-mentioned operations, and to some points of interest connected with them, amongst which are the following: The method employed was litholapaxy in all but two, in one of which a suprapubic, and in the other a median, lithotomy were done. There was no death in the whole series. Freyer has modified the instruments of Bigelow by substituting a fenestrated blade for the non-fenestrated blade of the lithotrite, by doing away with the tap at the top of the aspirating bulb, and by shortening the distance between the bulb and the bladder.

One stone of the series was an oxalate weighing three ounces and twenty grains. This the writer removed by litholapaxy in twenty-four minutes.

The writer denies the assertion that has been made that the results of litholapaxy performed upon the natives of India in which the greater part of his wide experience was gained, are more favorable because of greater power to resist surgical operations by them than by Englishmen. In corrobation of this he compares the mortality of 2,592 lithotomies performed upon Indian natives with 1,827 lithotomies collected by Sir Henry Thompson, in both of which it was nearly the same, namely, 13 per cent. and 12½ per cent. respectively. He also calls attention to the average age of patients operated upon in England and in India, it being eleven years greater in the former. The number of cases in which stone is complicated by prostatic hypertrophy is much greater in England than in India.

SUCCESSFUL NEPHRORRAPHY.

A successful case of nephrorraphy for the relief of threatening symptoms during pregnancy is reported by

J. Merkel.[2] The patient was in the fourth month of pregnancy, when she was attacked with severe abdominal pain on the left side and frequent and persistent vomiting. These symptoms were referred by the surgeon to an obstruction of the ureter produced by an abnormal position of a movable kidney; which proved to be the case on operation, the kidney being found rotated upon its long axis. After its reposition and fixation by nephrorraphy prompt and entire relief of the symptoms followed and the pregnancy went on to the normal term in a perfectly natural manner.

ULTIMATE RESULTS OF CASTRATION IN CASES OF PROSTATIC HYPERTROPHY.

In an editorial article of the May number of the *Annals of Surgery*, Pilcher gives some observations upon the ultimate results as a means of relief for obstructive hypertrophy of the prostate, as follows:

CASE I. Time since castration, three years. Present age, seventy-seven. Health excellent. Still has five ounces of residual urine, which are withdrawn twice daily by catheter. Urinates spontaneously every two or three hours.

CASE II. Time since operation, two and a half years. Age, fifty-eight. Notable improvement in bodily and mental vigor since operation. Had had a greatly overdistended bladder and dribbling urine. Still has 10 oz. residuum, and has to use the catheter. Prior to operation there was chronic retention, with 64 oz. in the distended bladder.

CASE III. Time since operation, two and a quarter years. Age, fifty-four. Some residual urine remains, and he continues to have cystitis. Is obliged to use catheter and bladder irrigation. Urination is now more difficult than during the first year after the operation.

CASE IV. Time since operation, two years. Age, sixty-seven. Health excellent. No mention made of the condition of the bladder.

CASE V. Time since operation, one and three-quarters years. Age, sixty-four. In good health and free from all urinary symptoms.

CASE VI. Time since operation, one and a quarter years. Age, seventy-two. In good health and free from all urinary disturbance.

CASE VII. Time since operation, one and a half years. Age, seventy-four years. In vigorous health. No mention of the condition of the bladder. It is unfortunate that the writer has not made a more detailed report of some of these cases.

In the first part of the article there is recorded another and striking case as follows: The patient, aged seventy-two years, suffered from obstructive prostatic disease not relievable by catheterization. Suprapubic cystotomy and double vasectomy gave him marked relief and restored the power of voluntary urination. Both results were temporary, however; and at the end of four months obstructive symptoms were again marked. He was then castrated. Gradual amelioration of the urinary symptoms followed; and at the end of four months he was performing the urinary function normally, and was in excellent health again.

LUMBAR NEPHROPEXY WITHOUT SUTURING.

Senn[3] exposes the kidney by the usual lumbar incision; the fat capsule removed over the posterior aspect of the organ, and the fibrous capsule scarified with a needle. The lower end of the kidney is brought forward into the wound and denuded, and a strip of iodoform gauze an inch wide is placed beneath the lower end of the organ, both ends of it being brought out over the wound margins. The floor of the wound on either side of the kidney is then packed with iodoform gauze strips in such a way as to hold back the fat capsule from the scarified posterior aspect of the kidney, leaving that surface well exposed. This is then covered with a thin layer of the same piece of gauze, and the whole wound is tamponed. The wound is left entirely without suture. The patient is then placed in bed, lying on the back, the foot of the bed slightly elevated; and he is kept there for four weeks. At the end of five or six days the gauze tampon and packing are removed and the wound closes by granulation. Both immediate and remote results are reported as being satisfactory.

[2] Munch. med. Woch., No. 31, 1897.
[3] Journal American Medical Association, December 11, 1897.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SURGICAL SECTION, DENVER, JUNE 7, 8, 9 AND 10, 1898.

(Concluded from No. 1, p. 14.)

SECOND DAY. — MORNING SESSION.

DR. G. W. MIEL, of Denver, read a paper entitled

PENETRATING WOUNDS OF THE POPLITEAL ARTERY.

The author stated that incised wounds of more than one-eighth of an inch in length required double ligation and extirpation of the part between. He stated that occasionally the artery was divided from within, and in his opinion one of the most difficult problems for a surgeon was what to do in a case of a complicated wound of the popliteal artery. He believed the first consideration should be the life of the patient, and under any circumstances recommended that the external wound should only be loosely closed. While complicated perforation of the popliteal artery showed a mortality of ten per cent., amputation of necessity seemed to be a much more serious operation than amputation of expediency.

DR. B. MERRILL RICKETTS referred to the work of Dr. Crile, of Cleveland, in this connection, who had tied the common carotid in a human being for from twelve to twenty-four hours, without injurious effect. He stated that he had recently torn loose the iliac vein while operating for the removal of a tumor, in which the results of ligation were most gratifying, and quoted a case which occurred in his brother's practice fourteen years ago where the deep profunda artery was shot off close to the femur. Amputation had to be performed, and the patient died forty-eight hours later.

DR. OLIVER, of Cincinnati, detailed a case occurring in a boy twelve years of age who had sustained a compound fracture at the epiphyseal line, which was reduced, but symptoms of obstructive circulation appeared on the second day, and amputation had to be performed on the ninth day. Subsequent dissection of the leg showed considerable effusion in the deep fascia, which no doubt caused the obstruction and resulting gangrene. It was found that two inches of the popliteal artery had been destroyed.

Dr. Tinker, of Philadelphia, referred to an experiment made some time since of dividing the descending aorta in an ass, firm union subsequently taking place.

Dr. Ricketts accounted for the success of this experiment on account of the large size of the artery, claiming that anastomoses are more successful in the larger arteries.

Dr. Miel closed the discussion by stating that temporary closure of the vessels was especially desirable in wounds about the mouth, throat and tonsils. He referred to a case of gangrene of the leg following amputation of the foot, where he had believed the circulation was good, the man subsequently dying from infection. He also related a case of compound fracture of the knee with injury of the popliteal artery where amputation was deferred, and gangrene resulted.

Dr. D. W. Graham, of Chicago, read a paper entitled

PRIMARY CARCINOMA OF THE AXILLA.

The author stated that frequently the first clinical manifestation of primary carcinoma of the breast was an enlargement of the axillary glands. He considered that pathologically the sweat glands were of great importance, as they are situated under the skin and not in it, and cases of carcinoma have been known to originate from them. He referred to the statistics on the subject of his paper, but did not believe that more than 18 of the reported cases were really primary carcinoma of the axilla. He concluded his paper by detailing two cases operated upon by himself.

Dr. Charles A. Powers, of Denver, commented on the great practical importance of this subject and urged the removal of every part of a gland when operating for carcinoma. He pleaded for early recognition and early extirpation in these cases, as being the keynotes to success, and commented on the difficulty of clinical differential diagnosis between a benign and a malignant growth.

Dr. Ochsner, of Chicago, called attention to the fact that he had seen three carcinomatous growths at a point at the inner limit of the axilla and the lower edge of the pectoralis major muscle, the nodule in each case being freely movable underneath the skin, and doubtless arose from glandular tissue, no doubt a portion of the mammary gland.

Dr. A. D. Bevan, of Chicago, called attention to two points, first, that there may be a small primary focus overshadowed by the secondary mass; or, second, the encapsulation of a piece of epiblastic tissue which has developed into carcinoma. The primary growth may be in the mammary gland and the secondary mass may be in the axilla.

Dr. J. B. Murphy asked whether the skin was movable over the tumor in the early stages in the cases cited by the author.

Dr. William L. Rodman, of Louisville, reported a case similar to Dr. Graham's of carcinoma of the axilla, which was removed, but was followed by death of the patient. He agreed with other speakers that a small lump in the breast may be overlooked and the growth in the axilla considered as primary when it is really secondary.

He laid great stress upon the danger of infection in operating upon these cases, and believed it to be even more necessary to remove the glands in the axilla than it was the primary growth in the breast itself.

Dr. Graham believed that many cases of fibroadenoma originated in the sweat glands as well as in the mammary glands, and stated that he did not see why a focus in the prostate could not just as well be secondary as primary. In one of these cases, the skin was movable over the tumor while in the other it was not, and he called attention to the fact that the sweat glands are under the skin and not in it. He believed that it was perfectly possible to have a supernumerary mammary nodule in the male as well as in the female.

Dr. M. L. Harris, of Chicago, read a paper entitled

CLINICAL RESULTS OBTAINED BY THE USE OF MY INSTRUMENT FOR OBTAINING THE URINE SEPARATELY FROM THE TWO KIDNEYS.

In reporting the results of the chemical and microscopical examinations of the urine obtained from the two kidneys, it was shown that a great difference existed, notably that that obtained from one kidney would be acid in reaction while that from the other was neutral. He claimed it was perfectly possible to collect the urine from the two kidneys by means of this instrument, even though a purulent cystitis might be present at the time. Four cases were quoted where the instrument had been used with excellent results and he later gave a practical demonstration of the use of the instrument.

Dr. McArthur, of Chicago, commended the author very highly on the excellence of the instrument and referred to some very gratifying results obtained by himself in its use. He mentioned a number of circumstances where the information elicited by its employment would be of inestimable value, and strongly advised the members of the Section to give it a trial.

Dr. Macbeth, of Denver, demonstrated a new surgical splint.

SECOND DAY. — AFTERNOON SESSION.

A paper entitled

THE USE OF MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS IN THE TREATMENT OF INOPERABLE SARCOMA, WITH IMMEDIATE AND FINAL RESULTS BASED UPON A PERSONAL EXPERIENCE OF SIX YEARS

was read by Dr. William B. Coley, of New York.

The author stated that he had restricted the use of the toxins to inoperable cases, of which he had treated 84. In the case of children he usually employs the filtered toxins, but always prefers to use the combined toxins of erysipelas and bacillus prodigiosus. He described in detail the method of preparation, and pointed out that greater virulence was secured by passing through rabbits. He denied that, as stated by some authors, the results obtained were local, although, when possible, the injections were given locally, and claimed that the action was both systemic and local, the severity of the reaction depending largely upon the rapidity of absorption. As to the dose to be employed, it is his custom to begin with a minimum dose and slowly increase the strength daily, the maximum dose depending on the virulence of the culture. He did not believe treatment should be continued more than three weeks if no improvement showed itself by that time.

The paper concluded with a brief synopsis of several cases treated by the author by this method, with results obtained.

DR. MCARTHUR, of Chicago, spoke in favor of this method of treatment, and pointed out that it was only in inoperable cases that the author employed and recommended it.

DR. HARRIS inquired why it was of no use in carcinoma.

DR. LEWIS, of Topeka, heartily commended this treatment, and gave the details of one case which put the toxins to a severe test but where a cure resulted from their use.

DR. A. D. BEVAN, of Chicago, called attention to the fact that, in his opinion, gummata were occasionally mistaken for sarcomata and treated as such, which accounted for a number of failures to successfully treat the condition.

DR. COLEY closed the discussion by stating that only in one case of epithelioma of the mouth had he seen good results follow the use of the toxins, so that he could not recommend them in carcinoma. He did not think that gummata and sarcomata would be confounded very often, except, possibly, round-cell sarcoma occasionally.

DR. W. W. KEEN, of Philadelphia, read a paper on

THE ADVANTAGES OF A PERMANENT ARTIFICIAL ANUS, AND OF TOTAL CLOSURE OF THE SACRAL END OF THE RECTUM IN OPERATIONS FOR CANCER OF THE RECTUM.

Details of several of the cases operated upon, with results, were given, and it was shown that several of the patients were sufficiently improved to be able to ride bicycles. Attention was called to the fact that the operation did away with the necessity of wearing a napkin at all times, which was one of the objectionable features of the old operations. The operation was shown on the blackboard and briefly described.

DR. A. D. BEVAN asked why the entire lower segment of the bowel was not removed instead of being closed, and DR. WILLIAM N. HARSHA, of Chicago, suggested the possibility of the lower segment assuming the condition of a vestigeal organ.

DR. KEEN stated that to remove the lower segment added to the risk of the operation, and he did not consider that it could in any way be considered as a vestigeal organ, which was hereditary.

SURGICAL DEMONSTRATION.

DR. CHARLES A. POWERS, of Denver, demonstrated three cases instead of reading a paper, the first being a child, who, at the age of three months, developed a large congenital coccygeal tumor, which the author considered a tubulo-dermoid. The second case was one of appendicitis, upon whom three operations were performed, at one of which the Murphy button was inserted, and passed thirty days later. The third case was one of T-fracture at the elbow-joint, where good results were obtained by treatment in the flexed position.

DR. HYATT, of Pennsylvania, commented on the last case, and DR. J. P. LORD, of Omaha, Neb., spoke on the relative merits of the flexed and extended positions in the treatment of these fractures, while DR. MCARTHUR, of Chicago, did not think either as good as wiring.

DR. F. W. MCRAE, of Atlanta, Ga., pointed out that the case of appendicitis was an excellent illustration of the inadvisability of doing too much surgery at one sitting.

DR. POWERS briefly replied to those who discussed the cases.

DR. H. A. HARE, of Philadelphia, read a paper entitled

THE MEDICAL ASPECT OF APPENDICITIS.

After dwelling at some length on the medical side of this question and on typhoid fever as a complication, the subject was divided into three classes: first, those that undoubtedly should be operated upon; second, those about which doubt exists; and, third, those that get well of moderate attacks and have no more. Some remarks were made on each class and its treatment.

DR. H. D. NILES, of Salt Lake City, read a paper entitled

THE TIME TO OPERATE IN APPENDICITIS.

Almost the entire paper was devoted to strongly advocating immediate operation in all cases, the probable mortality when this is done being placed at not more than two per cent.

DR. WILLIAM N. HARSHA, of Chicago, read a paper entitled

THE EARLY TREATMENT AND INDICATIONS FOR OPERATION IN APPENDICITIS.

The conclusion arrived at by the author was that twenty-four hours was long enough to wait before interfering surgically, during which time he advocated the use of codeine and cathartics.

DR. W. W. KEEN took exception to the statements in the papers by Drs. Niles and Harsha, especially as to the use of opium, the advisability of early operation in all cases and the two-per-cent. mortality, which he considered lower than could be hoped for in 100 operations on healthy individuals.

DR. J. RANSOHOFF, of Cincinnati, commented on the great care needed in the diagnosis and treatment of these cases.

DR. F. W. MCRAE agreed entirely with both speakers, adding that he believed every case of appendicitis in children should be operated upon.

DR. JAMES E. MOORE, of Minneapolis, and Dr. H. H. GRANT, of Louisville, pleaded for some definite line of action in cases of this disease, both by physicians and surgeons, while Dr. WILLIAM B. COLEY considered common sense was the most important factor in the treatment of these conditions always.

DR. J. B. MURPHY, of Chicago, argued strongly in favor of early operation, and believed that the probable two-per-cent. mortality was the maximum rather than the minimum when this was done in all cases.

DR. CONNER, of Chicago, commented on the very variable results of treatment of appendicitis, while DR. R. H. REED, of Rock Springs, Wyo., agreed with Dr. Murphy as to early operation, as did DR. EAGLESTON, of Seattle, who was also in favor of the use of opium.

DR. OCHSNER, of Chicago, while believing that early operation if performed at all would lessen the mortality, stated that putting the part at rest by stopping all food by the mouth was beneficial.

DR. HARE, of Utah, urged that the Section lay down the best general rule to be followed by country practitioners, and DR. EARL, of Wisconsin, was in favor of early operation as a general rule.

DRS. NILES and HARSHA briefly replied in closing.

THIRD DAY. — MORNING SESSION.

DR. A. H. LEVINGS, of Milwaukee, read a paper entitled

THE COURSE AND TREATMENT OF INJURIES TO THE PERIPHERAL NERVES.

Various forms of injury and repair were referred to, and the importance of asepsis and approximation of the ends without tension was illustrated. It was stated that absolute rest of the limb after repairing an injured nerve was not necessary.

DR. CHARLES A. POWERS, of Denver, related a case of his where sensation returned completely but function did not.

DR. R. H. REED, of Rock Springs, Wyo., demonstrated on the blackboard a method which had given him excellent results.

DR. LEVINGS stated that it was common for sensation to be recovered and not motion, and believed Dr. Reed's method a good one.

DR. R. H. REED read a paper entitled

POST-OPERATIVE INSANITY.

In addition to relating his own experience with these cases, the author had placed himself in communication with many of the leading surgeons of the country, and read extracts from their replies.

Very slight operations, it was shown, would sometimes be followed by marked insanity, as illustrated in some of the cases quoted. Details were given of a case operated upon for a local condition, who, although insane prior to the operation, was perfectly sane afterwards, and the difficulty of explaining this was commented upon.

DR. A. J. OCHSNER, of Chicago, discussed at some length, and gave his experience with seven cases of post-operative insanity, illustrating and emphasizing the points brought out in the excellent paper.

DR. REED closed by thanking the members for the extended discussion of his paper, and related a case of insanity which occurred as the result of a severe fright.

DR. HENRY O. MARCY, of Boston, read a paper entitled

TENDON SUTURE, ITS PREPARATION AND USES.

THIRD DAY. — AFTERNOON SESSION.

EXPERIMENTAL RESEARCH INTO THE EFFECTS OF TEMPORARY CLOSING OF THE CAROTID ARTERIES; REPORT OF CASE; EXHIBITION OF A NEW INSTRUMENT.

A paper on the above subject, by DR. GEORGE W. CRILE, of Cleveland, and for which the Senn medal was awarded, was read in part in the absence of the author, but was not discussed.

DR. GEORGE W. JOHNSON, of Dunning, Ill., read a paper entitled

RADICAL CURE FOR HERNIA AND HYPERTROPHIED PROSTATE IN OLD MEN; REPORT OF CASES.

DR. A. J. OCHSNER agreed entirely with the ideas as expressed in the paper, and commented on the fact that herniæ in male children could frequently be cured by operating for phimosis, which he had found almost always present.

DR. J. W. MAYO, of Rochester, Minn., said that the paper would be appreciated by those who had to do with patients in institutions. He had for some years done the surgical work in two large hospitals for the insane, one having 1,200 inmates and the other 1,000, and it had been the custom in those institutions for some years to do the radical operation for the cure of hernia among the inmates if otherwise proper subjects for operation. The insane by the nature of their malady being unable to properly retain their hernial protrusions by trusses often developed strangulated and gangrenous hernia and required formidable operations for relief; and among this class of cases, if hypertrophied prostate and resultant urinary difficulty co-existed, orchidectoryny has been done at the same time.

He heartily endorsed what the doctor had said as to the relief afforded and in this class of cases no reason of a sentimental nature can be entertained against it. From personal experience he stated that these patients stand operations well, but great care as to the preliminary cleansing of the skin should be taken. The insane are often filthy in their habits, with irritated skin, and this latter tends to develop the sebaceous glands which are the known habitat of the pyogenic organism.

In cases of large hernia, especially if unreducible, the patient should be put to bed, with the foot elevated to a moderate Trendelenburg position, for some days previous to the operation. This with a regulated diet will enable a safe return of the hernial contents, without danger of intra-abdominal tension from a sudden increase of the abdominal pressure.

DR. JOHNSON closed by reading a large number of statistics.

DR. FRED C. VALENTINE, of New York, read a paper entitled

A CONTRIBUTION TO THE STUDY OF THE SYMPTOMS OF CHRONIC GONORRHEA.

DR. BAYARD HOLMES, of Chicago, read a paper entitled

ADRENAL TUMORS IN THE KIDNEY.

DR. HOWARD A. KELLY, of Baltimore, read a paper entitled

PNEUMATURIA,

which he divided into four heads: first, those in which the air was mechanically introduced from without; second, those in which the gas developed in the urinary tract; third, those in which the gas reached the bladder from a surrounding area; and fourth, those in which the gas originated in the kidneys and ureters.

DR. J. RANSOHOFF, of Cincinnati, and DR. A. F. JONAS, of Omaha, Neb., each reported cases; and DR. D. W. GRAHAM, of Chicago, two cases.

DR. JAMES M. ANDERS, of Philadelphia, read a paper entitled

ETHER PNEUMONIA.

DR. A. J. OCHSNER stated that during the past four years he had instituted the plan of having his anesthetizers keep an accurate record of each case upon which he operated at the Augustana Hospital. During this period he had collected a little over 2,000 cases, and found that while the anesthetizer is making careful observations for his histories, he exercises a much greater amount of care in the administration of the anesthetic than is usual, and the disagreeable incidents are correspondingly fewer and less serious. During this period of time he had but two cases of pneumonia following anesthesia. Of course, in both of the cases the ether was the exciting cause.

The patient should be protected against sudden changes of temperature. The body should be covered with sterilized woollen blankets, and these with dry towels. No time should be wasted during the operation, for long-continued irritation from the anesthetic undoubtedly increases the likelihood of the occurrence of pneumonia. It is also very important not to permit the patient to inspire mucus from the pharynx.

DR. W. J. MAYO discussed this paper fully, and considered it an important one, as all who are doing surgical work and using ether meet with cases of ether pneumonia. He called special attention to the necessity of having only clean apparatus for its administration. He stated that some five years ago the modified Clover inhaler was used at St. Mary's Hospital. As is well known, sponge is used, upon which the ether is poured for inhalation. These sponges were afterward washed and kept in alcohol and used again. About this time he operated upon a strangulated hernia in a man having a broncho-pneumonia at the time; but this, of course, under the circumstances, could not be considered. In a week he died of the pneumonia. Within a month there were three cases of pneumonia; and in the sputum of all streptococci were found in abundance, with and without the pneumococcus. Chloroform was substituted for ether and there was no further trouble. It occurred to him to have the sponges examined, and streptococci were found in abundance. The first case had infected the sponge used, and this in turn infected the vulnerable cases. Most of the operated patients escaped, as during this time a large number of cases were operated and had no trouble. The average mouth contains all sorts of germs; but the patient is used to his own germs and withstands their assaults better than from an actively infected stranger.

Operations on the stomach are often followed by septic pneumonia. The preliminary cleansing of the stomach previous to operation is seldom even reasonably perfect, and particularly is this true with a dilatation due to pyloric stenosis. The stomach in these cases will be found to contain a considerable quantity of material at the time of operation. As the stomach is elevated out of the wound, some of this material may be gravitated into the dependent esophagus and from there aspirated into the lungs. He reported losing one case from a septic pneumonia having its origin in this way. Great care is necessary to avoid this accident.

As the work on the stomach itself is not painful, the anesthesia need not be complete during these manipulations, and more ether given to close the incision later. He mentioned one feeble patient who was given a little anesthetic only for the abdominal incision, and who complained of no pain whatever during a somewhat prolonged operation on the stomach. A little anesthetic was used in closing the abdomen.

DR. HARRY M. SHERMAN, of San Francisco, Cal., read a paper entitled

TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.

The following officers were appointed for the ensuing year: Chairman, Dr. W. J. Mayo, of Rochester, Minn.; Secretary, Dr. M. L. Harris, of Chicago, Ill.; Committee on Senn Medal, Dr. A. D. Bevan, of Chicago, Ill., Dr. Charles A. Powers, of Denver, and Dr. William B. Coley, of New York.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, February 21, 1898, the President, DR. R. H. FITZ, in the chair.

DR. HENRY JACKSON showed

AN INTERESTING SPECIMEN OF RUPTURE OF THE HEART.

The history is as follows: Mrs. G., white, age sixty eight. Previous health good, except for occasional attacks of indigestion. No symptoms suggestive of heart disease. Two sisters have "heart disease."

On Saturday, January 15, 1898, she was shopping in Boston, and as well as usual. Saturday night she had pain and distress in the region of the stomach, which she considered indigestion. She vomited and took two cathartic pills, resulting in several loose movements on Sunday, January 16th. Sunday she had great pain and distress in the region of the heart; the pain extended down the left arm. When seen by her son at noon on Sunday, she had severe pain; the pulse was very poor, intermittent and irregular; she was cyanotic. Morphine was given.

I saw her Sunday evening. Perfectly conscious. She vomited at intervals. She complained of great distress without definite pain. Heart-sounds fairly strong; no murmurs; action regular; area of heart not appreciably enlarged. The sounds were not accompanied by distinct murmurs, but there was a doubtful systolic sound along the left edge of the sternum. At the lower part of the left axillary region were fine râles, and a few coarse râles in the right lung.

Monday, January 17th. Two movements. Complained of gas in the stomach and bowels. Could not lie down in bed. No cough. Action of the heart rather better.

Tuesday, January 18th. Pulse hard to count; was about 100. The apex beat varied from 130 to 144; not intermittent. No murmur detected. Morphine was given, and in the evening the pulse was better. Nausea all day, and occasionally she vomited a small amount. Râles in the chest more numerous, especially at the left base.

Wednesday, January 19th. Heart-sounds feeble, but all the beats felt at the wrist; rate 100. She was decidedly more comfortable. Took more food. She slept a good deal during the day. At 11 P. M. was given morphine. At 1 A. M. she woke up, cried out, and in a few moments died.

She was perfectly conscious throughout her sickness.

Dr. W. T. Councilman was kind enough to make the post-mortem. The pericardial sac was filled with blood. In the anterior wall of the left ventricle was a large ragged tear and a small hole; the muscle was very soft and so discolored by blood that the heart looked as if it had been placed upon a block and hit with a hammer. The anterior coronary was completely occluded as the result of chronic endarteritis and secondary thrombus. Heart very slightly enlarged. Other organs practically normal.

DR. WATSON: Dr. Jackson spoke of the improbability of the patient living three days after rupture of the heart had taken place. I have recently seen the reports of some cases of rupture of the heart in which patients with penetrating wounds of the heart had

lived a longer period than that. I cannot give the exact data.

DR. W. F. WHITNEY: As to the closure of the coronary artery being the cause, it is well known that this is not always followed by softening and rupture. Curiously, on the day this specimen was brought in, there was another, from the City Hospital, in which there was also total occlusion of one of the coronary arteries at the place where it left the aorta; but in that heart there was not the slightest evidence of any degeneration, either fibrous or otherwise, as the result of this. The arteries elsewhere were in fairly good condition throughout, and we may suppose the nutrition had been supplied by means of collateral circulation around the apex.

A CASE OF ACUTE INTESTINAL OBSTRUCTION FROM A BAND, FOLLOWING CONFINEMENT.

DR. F. B. HARRINGTON: I would like to show a band which caused intestinal obstruction. It looks like a piece of good-sized catgut about an inch and a half long. The history of the case is briefly as follows: The wife of a physician was confined six days before I saw her. She had a perfectly comfortable day following the confinement. She then began to have great pain in the abdomen accompanied by vomiting. This kept up for five days, with greater or less severity. When I saw her there was fecal vomiting, distention and other signs of intestinal obstruction. On opening the abdomen it was found to be filled with a slightly brownish fluid. A fibroid about as large as an English walnut was felt on the right-hand side of the uterus. This fibroid was held firmly by a small band which was attached to the mesentery of the small intestine above. The tension upon this band was great, as it was practically bearing the weight of the uterus. Under this band was caught a loop of small intestine. Cutting the band freed the obstruction, and the gas passed readily through the previously collapsed intestine. The intestine was not injured by the pressure of the band to any extent. The band probably resulted from the attachment of the fibroid to the mesentery after the uterus had reached considerable size. In the process of involution after confinement the uterus pulled down the adhesion, forming a tense band which pressed upon the loop of intestine which lay under it. The patient made a rapid and complete recovery after the operation.

DR. W. H. BAKER: The case Dr. Harrington has just reported suggests the great importance in laparotomy of covering all denuded surfaces, not leaving any means of adhesions afterwards. It is thus possible by careful plastic surgery in the abdomen at the time of operation in many cases to prevent subsequent suffering. Although Dr. Harrington's case here is not one in point, yet still it suggests the importance of great care at the time of operation. Celiotomies are so common now we cannot be too careful to avoid any possibility of such adhesions or intestinal obstruction.

DR. A. T. CABOT: I have here the x-ray pictures of an ankle-joint in which I did resection of the ankle seventeen years ago. The girl happened to come into my office the other day, and I took this picture. The operation consisted in removal of the whole astragalus and about an inch of the lower end of the tibia and fibula, the malleoli being taken off. I think these figures speak for themselves. She came in on account of a certain amount of pain in the foot, with a tendency to turn out. I think the pain was partly due to flattening of the arch, which will be remedied by a slight support in her boot.

DR. MAURICE H. RICHARDSON and DR. G. W. W. BREWSTER presented a paper entitled

REMARKS BASED UPON A PERSONAL EXPERIENCE OF 750 CASES OF APPENDICITIS, WITH A REVIEW OF 150 CONSECUTIVE CASES SUCCESSFULLY OPERATED UPON "IN THE INTERVAL."[1]

DR. J. C. WARREN: Dr. Richardson's system of collecting large numbers of cases is an excellent one; in this disease as well as in any other. Now that the domain of surgery is enlarging so extensively, we have new problems brought up to us continually; and the only way we can meet them properly is by grouping masses of cases in this way together and analyzing them as the results of our experience. I am sure the group which has been presented to us this evening is a most valuable and instructive one. A number of thoughts have occurred to me in the course of the reading of the paper that are of interest in the present standpoint of our knowledge and experience of the operation. First, in regard to the diagnosis. The plane on which we stand to-day is very different from the one on which we stood a few years ago. The problem is much easier; at the same time there are a certain remnant of cases which are liable to lead us into error. I think we have always to be cautious. I have come to the conclusion that in all cases of obscure abdominal trouble if we were to make the diagnosis "appendicitis" we should be right at least more than one-half the time, that lesion representing so large a proportion of acute abdominal inflammations. On the other hand, I have had several cases sent to me with an incorrect diagnosis. I recall one case which was sent to me for operation between the attacks. It turned out to be a case of painters' colic. Another case, in which the symptoms were urgent, proved to be a case of vesical calculus instead of appendicitis, some acute complication supervening upon an ailment which had existed really for over a year, but about which information had been withheld. In a third case no abdominal lesion whatever was found although several experienced diagnosticians had seen the case.

The question about the time to operate is one, of course, which is extremely important, but one which does not seem to be unanimously agreed upon at the present time. Although we all recognize the immense advantages of prompt surgical interference in the majority of cases, to operate in every case of diagnosis of appendicitis is a rule to which I do not think we can all subscribe. An abdominal operation, dividing as it does the abdominal parietes and exposing the abdominal cavity, is not a trivial ordeal for anybody to undergo. It should not be entered into lightly. It leaves behind certain disabilities: there are a scar and adhesions for one thing, the danger of hernia for another, and there is the inconvenience of being obliged to wear some form of apparatus afterwards, the possibility of secondary operation for the relief of fistula or for hernia looming up still before the patient, and then there is always the possibility which Dr. Richardson has indicated, to be sure by only one or two examples in his large series of cases, namely, of having symptoms come on after removal of

[1] See page 25 of the Journal.

the appendix, symptoms resembling an acute attack of appendicitis. I have had one such case in my experience, — a young man, an athlete, six months after an operation, was injured while coaching a foot-ball team and had a very sharp attack of localized peritonitis which laid him up for six weeks. There are of course adhesions there and other cicatricial formations which do not leave the patient just as well as if he had a perfectly healthy abdominal cavity. The time to operate, then, is one, as I have said, about which there is still a question. My feeling is that in acute forms of the disease, if seen early, it is best to operate at once, but in certain cases which have advanced far enough to make it evident that the affected area is a small one and is well walled off, it is proper to delay with the intention of operating after the acute symptoms have subsided, of operating between the attacks when we can operate by a different method from what we can when the wound is septic. It should be thoroughly understood, however, that under these circumstances the patient should be under the constant observation of a competent surgeon.

In regard to the technique of the operation, I am inclined to keep within the infected area rather than to go out into the open peritoneal cavity, although our present methods of walling off are so far superior to those formerly in use, still I should not feel authorized to adopt that as a routine method. In a grave case where it is desirable to inspect the rest of the abdominal cavity we might begin that way, otherwise I should prefer to open the infected area, and drain the abscess. I fully realize the importance of getting the appendix out at the time of the operation, at the same time I think it is wise not to feel under obligation always to do so, as there are circumstances, such as grave constitutional disturbance, when it is wiser to leave it perhaps for a second operation or to become obliterated or destroyed. I saw an autopsy on a patient recently who had no appendix. I presume it was obliterated by some inflammatory process in early life.

The question of the treatment of general peritonitis seems to me a very important one and one that interests me perhaps more than any other just at the present time. Out of about twenty-five cases of appendicitis in my service this winter at the hospital with four deaths, there was one case of general peritonitis successfully treated by Dr. Scudder. Finding a general peritonitis he made a large incision in the median line, washed out the abdominal cavity and sewed up the wound, leaving in salt solution, and the patient got well. A culture showed the organism to be a bacillus. I feel the necessity of being told a little more about the types of peritonitis from the point of view of etiology. A bacteriological classification of peritonitis with clinical illustrations would give valuable data on which to base an opinion as to prognosis.

The question of fecal fistula was alluded to by Dr. Richardson. I had one case in which there was a large artificial anus in the colon, on which I operated this winter, and during convalescence symptoms of intestinal obstruction suddenly occurred and the patient died, and at the autopsy it was found that there were several extensive slender adhesions running to different portions of the abdominal cavity, apparently independent of local adhesions. This patient had been operated on and the appendix removed outside the hospital and was sent in afterwards for cure of the artificial anus.

Hernia does not seem to me so frequent as some writers would lead us to suppose. In my experience I have had very few cases after the operation to operate upon. I think we can diminish the tendency gradually by the more careful methods of stitching up the abdominal wound, by provisional sutures, bringing the abdominal walls closely together and carefully watching the after-treatment. I think every surgeon who operates should inspect the wound himself and not leave it entirely to his assistant. Under those circumstances I think he can get the wound healed in a shorter time and the chances of hernia are correspondingly diminished.

DR. F. S. WATSON: Ever since our President, DR. FITZ, first gave to the profession the knowledge upon this subject which has led to such important results, we have been accumulating data, and from the surgical point of view we have come to a fairly unanimous agreement with regard to many points concerning it.

In the first place with regard to diagnosis. This now presents but few difficulties, and I am happy to say that the days of delay on the part of the physician in summoning the surgeon are passing away.

The condition which has caused me doubt as to the diagnosis more often than any other is not that of gall stones, which the reader mentioned, but of acute salpingitis.

With respect to operative interference, my experience as compared with Dr. Richardson's is small; I have operated upon a little less than 100 cases, and watched the course of about 60 others in which no operation was done. So far as my experience goes, it leads me to incline to the opinion expressed by Dr. Cabot rather than to that of Dr. Richardson; that is to say, my tendency is to operate more, rather than less, frequently.

The cases in which I am not inclined to operate are those which one sees some time after the second or third day, and in which the attack is evidently subsiding. If I see the case earlier than this, however, even though it seems to be at the beginning one of moderate severity, I do not like to counsel delay. A few very unfortunate experiences from having waited, in this class of cases, brought me to this view some time ago. While it is probable that the majority of such cases will recover from that particular attack without operation, yet *I* cannot tell in any given case that this is to prove true of it, or whether it is to change at any moment into one of fatal severity; nor do I know of *any one* who can predict its subsequent course with any certainty. I am speaking now of those cases which are violent from the outset, though they are well marked enough examples of the disease. Now, if we wait under these circumstances, we shall in a certain number of instances be called upon by the sudden increase in the severity of the symptoms to operate; and no one will deny, I take it, that we have then allowed the more favorable time to have passed in which to operate. On the other side, it can only be urged that in a certain proportion of such cases, which I readily admit to be the majority, if we do not wait, we shall have operated where the patient would have recovered from the acute attack and allowed us the choice of operating in the quiescent period, or, if it is thought best, of waiting for a second manifestation of

the disease before operating at all. Personally I prefer to incur the responsibility of having done the operation in some cases in which recovery might have occurred without it than that of having a fatal issue from the policy of waiting and having to operate after the milder seeming case has suddenly fulminated into one of unlooked-for virulence. There are one or two phrases that I should like to see expunged from the medical vocabulary as applied to the early cases. They are these: "Well, I think we will wait and see if the patient is not better to-morrow morning"; and "we will watch the case carefully and interfere if it seems necessary at any time."

I quite agree with the reader that it is better — if I understood him correctly — to postpone operation in acute cases that one is not called on to see until the fifth or sixth day, for a day or two longer sometimes, in order to allow of more thorough walling off of the general peritoneal cavity or the subsidence of the acute attack, if that becomes its evident course.

With regard to the desirability of operating between the attacks in cases of recurrent appendicitis, we are all, I fancy, in accord; and no better proof of the value of the procedure could be furnished than the series of brilliant results that has been presented to us to-night by Dr. Richardson.

To return to certain matters concerning the acute cases, I would urge that we should never decline operating in cases of general peritonitis arising in connection with appendicitis — unless, of course, the patient is moribund; for the record of recoveries after operation in apparently desperate conditions is constantly being added to by various surgeons, who under improved technique are enabled to save an increasing ratio of patients. I have been impressed with regard to the latter with the advantage of leaving a large quantity of hot saline solution in the abdominal cavity after thoroughly irrigating it with the same fluid, and also infusing under the skin one pint or rather more of the same solution at the time of operation and repeating it at intervals afterward.

I would call attention to another matter which has not been referred to this evening; it is that of closing the abdominal wound entirely after removing the appendix when it is acutely inflamed, but not perforated, and when there is no pus formation, though there may be adherent exudations upon its surface, and when the case is operated upon early. I did this first in 1893 under the above conditions, the patient making an uninterrupted recovery. Since that time I have repeated the experience in six other cases all of them making rapid and perfect recoveries, the wounds uniting uniformly by first intention. I have lately been told that Dr. Finney, of Baltimore, has treated a number of patients in the same way, and advocates it in appropriate cases. The idea upon which I based this manner of treatment was that they were cases which would probably have gone on to recovery had they not been operated upon, and I saw no reason why that result should not be made all the more probable by the removal of the cause of the disease, provided one felt confident of not having contaminated the peritoneal cavity, and had cleaned the field of operation thoroughly. The cases referred to are not to be taken as being recurrent ones. They were all first attacks, acute, some with severe symptoms; and with one or two exceptions they were operated upon in the first two days of the attack.

One word with regard to drainage. I do not like the use of gauze wicks; they may be useful to protect the surrounding tissues from infection, but they will only drain thin fluids and serve chiefly to obstruct the outflow of all else. The rubber drainage-tube remains with me the best means of evacuation. Glass or other rigid drainage-tubes have the disadvantage of sometimes injuring the intestines by pressure and causing fecal fistula.

Dr. Harrington: I was led to go directly into the abdominal cavity in acute appendicitis because I found that in the effort to remove the appendix one usually was obliged to expose the healthy intestine sooner or later.

I don't feel as Dr. Watson does about the matter of the wicks. I feel that they are of great value, not so much in the way of carrying off large quantities of fluid, but because of the non-septic adhesive peritonitis which they set up, which walls off the septic area from the rest of the cavity.

In these cases after you have emptied an abscess and packed it with gauze you seldom get a pouring out of pus for a day or two. During this time the gauze and wicks are absorbing whatever material there is, preventing its passage into the general cavity and strengthening the partition between the septic and the healthy areas. These wicks can be removed when they become saturated and fresh ones replaced. An interesting point to me in septic cases is the depressing effect of ether. Usually ether acts as a cardiac stimulant when first inhaled. In extreme septic peritonitis ether often acts immediately as a depressant. In some of these cases it has seemed to me that anesthesia of the abdominal walls produced by cocaine or by the freezing process might be tried to advantage. I fear that the closing up of the abdomen without drainage is likely to be carried too far. I don't believe that we can tell with certainty when a septic abdominal cavity will cease to form dangerous material which it cannot take care of. We have all had more or less experience with tapping abscesses in other parts of the body. They often refill. Sometimes they do not, but it is a dangerous experiment to make in the abdominal cavity.

McBurney has pointed out the danger of the reappearance of symptoms of acute appendicitis in cases in which the stump of the appendix contains a stricture which shuts off the cavity of the stump from the cecum. He advises the passage of a probe into the cecum through the stump before applying the ligature.

I feel very certain that cathartics and fruits will often bring on an attack of acute appendicitis in a predisposed patient. I recall the case of a man who came to the hospital for a simple operation. He was given very thorough catharsis and prepared for operation. There was unavoidable delay and the operation was deferred for a day or two. He was again prepared for operation, the vigorous catharsis being repeated. This was accompanied by free movements of the bowels and much pain during the night. In the morning it was found that the man had symptoms of appendicitis. He refused operation, went home and died in a few days from the attack with symptoms of septic general peritonitis.

We have to remember that long after operation for appendicitis obstruction of the bowels from bands and adhesions may occur. One of my own cases, a year after operation, died in a neighboring city without operation, with symptoms which seemed to me to have

been those of intestinal obstruction. I did not see the case at this time. I have operated myself upon such a case in which the symptoms appeared more than a year after the original operation.

DR. E. H. STEVENS: One point has not been touched upon. A good deal has been said about pain in appendicitis, but nothing about tenderness: it seems to me a very important point in making a diagnosis. Tenderness localized over the seat of the appendix is of more importance than any other one symptom. In recurring (catarrhal) attacks of appendicitis there is often great pain, with little localized tenderness. There is a class of cases where the tenderness is so localized that the tender point can be covered by a silver dollar. If such a case has been going on for several days, it is a case to operate upon at once. This condition may exist with a normal pulse and temperature, but it is a condition of danger.

I think Dr. Cabot will remember a case in my own family. He had a chance to operate on two of my boys. One boy had had an attack that lasted a week; back in school a week, and then came down to breakfast in the morning saying the pain had returned; temperature normal, pulse 60. On examination a little spot was found that was decidedly tender on deep pressure. Dr. Cabot saw him the next day and thought it was a pretty mild attack; still perhaps it would be well to take it out. The inside of that appendix was very thoroughly diseased. I feel sure that within a very short time we should have had a perforation. That boy got well; the abdomen was sewed up at once. I have seen quite a number of cases of that kind where the thing which led me to an operation was the localized tenderness which remained without any pain and without any fever. It seems to me it is a very important point.

Another point is the question when to know you have a serious condition. This winter I have seen three cases of gangrenous appendices that were operated on within less than twenty-four hours of the first symptom, where the whole appendix was gangrenous, temperature below 100°, pulse below 80, where the only symptom was the general look of shock which the patient showed. The patient looked very sick, but the other conditions (pain and tenderness) were very little in evidence. Still, a gangrenous appendix throughout the whole length was found. It seems to me it is the most difficult matter in the world to know when to operate and when not to operate. Every operator must be guided by his experience.

DR. FITZ: To a certain extent the discussion is a confession of faith. We must not forget, however, that about 70 per cent. of cases of appendicitis have recovered without surgical treatment. Hence, if every patient is to be operated upon, a good deal of unnecessary operating will be done. We must bear in mind also that many patients are unable to have the benefit of the surgical skill of this community or of other large communities, and in the country, as a whole, it is perhaps more in the interest of the patient with appendicitis to escape immediate operation than to be operated upon.

DR. A. T. CABOT said, that, in regard to the question when not to operate (because that is the hardest thing for a surgeon to decide), he could only say that in his practice he found that the cases he did not operate on were getting constantly fewer rather than more. He expressed his indebtedness to Dr. Harrington for showing him the advantage of opening into the peritoneal cavity above the infected area, and thoroughly surrounding the seat of infection with a wall of gauze before going into it. He said that for two years with hardly an exception he had followed that method of treating all those cases of local tumor that he formerly had treated by cutting directly into the infected area and draining the abscess. The operation done in this way has seemed as safe as an operation for simple drainage of the abscess and has the decided advantage of removing the appendix and obviating the danger of subsequent attacks or of a persistent fistula connected with the appendix.

Dr. Cabot said that the two classes of cases in which he would postpone operation were those in which the patient was so sick that he could not bear the operation, where there was some chance that the abscess might drain through the intestine and thus relieve itself, and the cases in which the patient was so distinctly getting better that it seemed wise to wait until the subsidence of the attack and to then operate in a quiescent period.

One point not mentioned in regard to the detail of the operation is the great importance of draining the pelvis. It is quite common to find much pus in the pelvis and that is the low point into which the abdominal fluids naturally gravitate, and which, therefore, in all these cases, should be adequately provided with drainage. This can be accomplished with a combination of a wick and a tube.

DR. RICHARDSON: As one's experience and familiarity with abdominal operations increase, the safety of exploration and of aseptic operations is so conspicuous that he is inclined, perhaps, to radical rather than to conservative views. Such, at least, is my own tendency — an inclination which ought, I am sure, to be most carefully watched and restrained. In the question of operating in the interval for suspected appendicitis, for example, the procedure seems so simple and so safe that it is more than probable that unnecessary operations are done. An occasional death will take place as the result of these unnecessary operations. In certain forms of acute appendicitis my reluctance to operate arises from the deplorable mortality in that group — by no means small — in which operation converts a localized peritonitis into an uncontrollable general one. I have observed one thing in connection with abstract discussions and with concrete cases — we never have any difference of opinion, at the Massachusetts General Hospital, in a given case, as to the necessity of operating upon that case — and I venture to state that the surgeons and physicians, meeting here from different hospitals to discuss this question, would all at the bedside give the same advice. The trouble is that in our discussions here we are not talking about the same conditions.

X-RAY PICTURES OF AN ANKLE-JOINT.

DR. A. T. CABOT showed the x-ray pictures of an ankle-joint in which he did resection of the ankle seventeen years ago. The operation consisted in removal of the whole astragalus and about an inch of the lower end of the tibia and fibula, the malleoli being taken off. The final condition of the joint as shown by the skiagraph was very good. The os calcis rested firmly against the broad lower end of the tibia and fibula, and the arch of the foot was quite well preserved.

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THE CARE OF OUR WOUNDED SOLDIERS.

It has been said that the treatment of the wounded on the field of battle has ever in the past been characterized by neglect and cruelty. This, as a general proposition, cannot be true. Cyrus, Alexander, Cæsar, Hannibal, Napoleon loved their soldiers, and doubtless after every battle endeavored to save whom they could of the wounded, though millions must have perished through want of the knowledge and appliances of modern surgery.

It may be stated, however, as a truth to which there are too few exceptions, that kings and generals have been willing that their armies should fight and die for them, but that the unfortunate victims of missile and weapon were often abandoned to a terrible fate. Not seldom, in the nature of the case, it was impossible to give aid; the wounded died before succor could reach them or were dispatched without mercy by the enemy into whose hands they fell.

The annals of human misery have been sketched by many authors, but the chapter that adequately depicts the sufferings of the injured on the battlefield is yet to be written.

It may truly be said that the systematic organization of surgical means for the alleviation and amelioration of those wounded in battle is of modern date. In what other age of the world has mankind witnessed a Red Cross organization, caring alike for all the wounded, whether friends or foes; sanitary commissions carrying their beneficent arrangements into the very heart of the battle; or even the splendid surgical outfit with which every civilized government now supplements its army supplies? When have surgeons ever before displayed such heroism on the battlefield — a heroism which has led men, like Church, at the battle of La Quasina, off Santiago, to rush to the rescue of the wounded between two lines of fire, and with bullets pelting all around them, apply dressings and bandages and carry the injured men from the field to a place of safety? There never was a time when so much could be done for the injured soldier as to-day. By the antiseptic knowledge and skill which every army surgeon possesses, troublesome and dangerous septicemic complications, so common in the past, may be guarded against and in large measure eliminated; wounds of the viscera will not be as fatal as they once were; and compound fractures will not always be regarded as necessitating immediate amputation; even that bugaboo of past ages, hospital gangrene, will become rare. The violent antiphlogistic *régime*, so much in vogue half a century ago, will not, either in theory or practice, be adopted by the army surgeon.

There will, in the present Spanish-American war, be an improvement over the late War of Secession in the medical and surgical care of the sick and wounded, just as there have been advances in therapeutics and in surgery — and in no respect more than in antiseptic surgery — since that war terminated. A glance over that magnificent work "The Medical and Surgical History of the War of the Rebellion" will indicate the progress which has been made since 1865 in antiseptic surgery, to say nothing of the improved technique of multitudes of operations. The entire science of bacteriology, moreover, with all of its practical applications to medicine and surgery, has been developed since the late war. That once famous "Commentaries on Surgery," by Guthrie, was a favorite text-book of the army surgeon during the early sixties; a book which would be wholly inadequate as a guide to the modern army surgeon. The Röntgen-ray apparatus will undoubtedly be a valuable adjunct to the military surgeon in helping him to locate bullets, determine the extent of bone injuries, etc., and it is gratifying to note that the United States Army is to be well supplied with these instruments.

It may be said, then, in conclusion, that the military surgeon of to-day has a far better outfit for his work of caring for our wounded soldiers than his predecessors of thirty odd years ago. He will be expected, therefore, to do better work and save a larger percentage of lives. Unfortunately, however, the means and weapons of modern warfare are deadly and destructive to a degree never known in the past, necessarily, therefore, every battle will be attended with a larger mortality. Our soldiers on the battlefield in Cuba are meeting with lesions by shot and shell and ball at which our surgeons stand aghast, and the surgical history of the present war bids fair to be something unique.

Fighting seems to be becoming a business whose end is to kill the most men possible in the briefest space of time, while from the humanitarian side unprecedented efforts are put forth to rescue as many lives as possible before bleeding arteries have allowed the last drop of blood to escape, or open wounds have had time to become septic. It is not enough that an army should be sent into the field to attack the enemy; with it must be sent litters, awnings, ambulances and a complete outfit of hospital stores and surgical appliances,

and the army department will meet public retribution which fails in these particulars.

The ideal arrangements, which, of course, will often from the difficulties of the situation fail of complete realization, is the providing of several ambulance stations, an arrangement which worked very well in the late war with the South. There is a first station immediately in rear of the battle-line to which the wounded are brought; stimulants are administered against shock, bleeding vessels compressed or tied, and bandages applied. Then they are hurried to a second station still more remote from danger, where a more thorough examination is made, where wounds are more carefully dressed, and they are thence transferred to the division hospital, which contains, or should contain, complete medical and surgical outfit. There has been some complaint that our army in Cuba has been slow in coming up to these requirements, but if the war continues the war department ought to be found equal to every demand.

INTRACEREBRAL INJECTIONS OF ANTITOXIN IN TETANUS.

THE experiments of Roux and Borel, reported at the Madrid International Congress of Hygiene, on the intracerebral injection of antitetanic serum, were of great interest.

Acting on the theory that the frequent failure of the antitoxin treatment of tetanus is due to the fact that the antitetanic serum when injected into the blood became so dispersed and diluted as not to be carried in sufficient amount to the central nervous system, where alone its action can be effective, they practised intracerebral injections of the serum on 45 tetanized guineapigs, 35 of which recovered. Of 17 others which received injection of much larger quantities of antitoxin under the skin, only two survived.

On the basis of these experiments, Chauffard and Quenu have reported in *La Presse Médicale* for June 18th, a case in which the intracerebral injections of antitetanic serum were successfully employed in the human subject.

The patient, a healthy male, sixteen years of age, suffered a crush of the index and ring fingers by a falling sash. The incubation period was fourteen days, and on the seventeenth day trismus was present, but there was no affection of the muscles of deglutition or respiration, and there were no spasms. Twenty cubic centimetres of antitetanic serum were injected under the skin.

On the eighteenth day there was well-marked tonus of the muscles of the trunk. On this day M. Quenu trephined over the anterior part of the squamous portion of the temporal bone on either side, and through a hypodermic needle injected into each frontal lobe about two cubic centimetres of a concentrated serum at a depth of five or six centimetres. Slight improvement immediately followed the anesthesia, but the usual slow course observed in tetanus cases which end in recovery, whether or not under antitoxin treatment, ensued.

On the twenty-first day 20 c. c. of serum were injected subcutaneously, and 10 c. c. respectively on the twenty-fourth, twenty-fifth and twenty-sixth days. On the thirty-first day decided improvement was first manifested.

The writers in commenting upon their case are naturally unwilling to attach undue importance to a single case, but insist on the severity of the disease and the positive evidence afforded, and the editor of the New York *Medical Journal* is induced to remark, "It seems to us that Roux and Borel have now made a substantial advance in the serum treatment of tetanus."

Although the result in this single case was good, it seems to us that there are many reasons which suggest that the optimistic view expressed by our valued contemporary is somewhat premature.

In the first place, granting, as we must, that the central nervous system is the point at which the tetanus serum must take effect, it is not only the psychomotor centres, but the lower centres in the remainder of the brain and cord, and not simply those in the frontal lobe upon which the antitoxin must act. The antitoxin which is injected into any given part of the cerebral substance will inevitably be absorbed by the lymphatics, enter the venous circulation, and be distributed by the arteries to the remaining nervous tissue, exactly as it is as when injected into any other portion of the body. Although a certain amount may reach the posterior portions of the brain and the cord by direct diffusion, it is doubtful whether a larger amount would be diffused through the nervous system, as would reach it by a direct intravenous infusion into a vein of the arm.

Only a comparatively small amount of the serum could be injected into the brain without danger of producing at least grave cerebral edema, if not the actual destruction of centres and tracts of more or less importance at the seat of injection. Unless the preparation employed by Quenu and Chauffard were of vastly greater strength than the antitoxic serums ordinarily employed, it would be possible to inject only a fraction of an efficient dose into the cerebral tissue.

In order to administer the dose which Behring considers necessary (500 units), it is necessary to inject from 250 to 500 c. c. of the serums such as are provided by the New York and Massachusetts State Boards of Health. Such amounts it would be manifestly impossible to inject into the cerebral substance, and only by showing that diffusion adequate to make up for the necessarily small dose would result, can we hope that the method would prove efficient.

From one case, as the authors state, it is impossible to make deductions of value, and with regard to the alleged positive character of the evidence in this particular case we are compelled to demur. The case in the first place can hardly be called acute, as the incuba-

tion was long, fourteen days, and on the eighteenth day, when the intracerebral injection was made, the symptoms certainly were not severe. The course of the disease thereafter did not differ from that of the average case of tetanus which recovers.

The efficiency of the antitoxin treatment according to the methods previously in use, can hardly be regarded as proven, and there is reason to believe that the dosage has been almost uniformly insufficient. The case reported by Quenu and Chauffard was of so mild a type that it is of little value in estimating the worth of their procedure.

Although the experiments of Roux and Borel are suggestive, they require further confirmation before judgment can be pronounced as to their value. Therefore, while admitting the boldness of the operation and the brilliancy of the result in this case, it is incautious to affirm that a substantial advance has been made.

The experiments of Roux and Borel may have been suggested by the extremely interesting fact recently demonstrated by Wassermann and confirmed by Marie and others, that emulsion of normal cerebral tissue, when injected mixed with tetanus toxin, has an absolutely protective effect upon the animal (rabbit or guinea-pig) upon which the injection is practised. The activity at present exhibited in both the experimental and clinical fields upon the serum treatment of tetanus gives reason for the hope that such substantial progress will be made in the early future in treatment as has been recently effected in prophylaxis. But only by a slow and careful analysis based on a number of cases, which it will require much time to collect, can safe conclusions be based. Hasty speculation from a single case will not further the advance of knowledge.

MEDICAL NOTES.

DR. SENN CHIEF OF THE OPERATING STAFF BEFORE SANTIAGO. — Lieutenant-Colonel Nicholas Senn has been detached from his duties as Surgeon to the Fifth Army Corps at Chickamauga, and appointed Chief of the Operating Staff of the Sixth Corps now before Santiago.

MURDERERS OF SURGEONS TAKEN.—It is reported that seven Spanish soldiers, who are known to have been in the band of sharpshooters who fired upon our ambulances at Santiago and killed Drs. Danforth and Troval, have been taken by our troops. It is probable that they will be hanged.

GIFT OF A HOSPITAL TO THE RED CROSS. — Mr. James Armstrong, of New York, has offered the Red Cross Society the use of his country house at Centre Hill, Fla., as a hospital. The house has twenty large rooms and is built on the highest point of land in the State, about seventy miles from Tampa.

YELLOW FEVER AT SANTIAGO? — As we go to press there are unconfirmed rumors of yellow fever among our troops before Santiago. It has been recognized for some days that cases of "low fever" were quite numerous; and the burning of the village of Siboney by the orders of General Miles upon his arrival is a suggestive circumstance.

HOSPITAL TRAIN IN A WRECK. — The hospital train bearing the wounded to Fort McPherson, was in a rear-end collision six miles south of High Springs, Fla., on the evening of July 10th. No one was hurt, but the private car was demolished. The train, after some delay, proceeded to Fort McPherson.

TETANUS-SERUM bearing the control number 13, made by Meister Lucius & Bruning, of Höchst-am-Main, is announced as withdrawn from the market, owing to the contents having deteriorated in immunizing units. As some of the firm's products find their way to America, and delay in the use of a proper tetanus-serum would be serious, the notice seems worth calling attention to. — *Philadelphia Medical Journal.*

THE DANGER OF YELLOW FEVER IN KEY WEST.— There have been two cases of illness recently at Key West, which it is suspected may have been yellow fever. One of the patients was a sailor, who recovering from appendicitis was taken seriously ill and died in two days. The other case was an attendant at the Marine Hospital, and as the diagnosis in his case was doubtful, it may be questioned whether either case was genuine yellow fever.

WOMEN-NURSES AT THE BROOKLYN NAVAL HOSPITAL. — Miss Helen Long, the daughter of the Secretary of the Navy, is, with three companions, regularly detailed as a nurse at the Naval Hospital at Brooklyn. They have been students in the medical course at the Johns Hopkins University, but have offered their services, during the summer vacation, to help take care of the sick and wounded sailors. This is said to be the first time since the Civil War that there has been volunteer female nursing done at this hospital.

CASUALTIES OF A SMALL BOY FOR ONE WEEK. — S. M. Worthington, M.D., of Versailles, Ky., writes: "My legacy to posterity, S. M. W., Jr., aged one and one-half years, swallowed a pin on Sunday; passed it on Monday. Swallowed three pins and five buttons on Tuesday; passed them all in one action on Wednesday. On Thursday, procuring my hypodermic syringe case, he took an unknown quantity of tablets of morphine, gr. $\frac{1}{4}$, and atropine, gr. $\frac{1}{150}$. By constant attention through that day and night he sufficiently revived to be taken riding on Friday. The horse shied. The hub shot through, throwing all out of the cart, and, catching in the felloe, dragged the wheel flatwise. When I regained my feet the horse was running furiously up the rocky road, the boy lying on the wheel. Some sixty yards away he slid off on the roadside grass, without injury of any kind. On Saturday he rested from his labors in casualty. Sunday returning, he went with me to church and proved the promise, 'He giveth his beloved sleep.'" — *Medical Record.*

KISSING THE BOOK. — "At the Central Criminal Court on June 23d Mr. Justice Grantham said that the

testaments on which witnesses were sworn had been in use for a great many years, and he thought that it was time that the proper authorities should supply new ones. No one, however, seemed to know upon whom this duty devolves. A copy of the Gospels can, we believe, be procured for a penny, so it ought not to be difficult to supply new copies, but we earnestly hope that when new ones are supplied advantage will be taken by the judges to point out that the Scotch form of oath is perfectly valid and should invariably be preferred. We need not again go into the arguments against the practice of 'kissing the book,' and we merely mention the circumstance because it seems to us a favorable opportunity of doing away with the practice altogether." So says the London *Lancet*. If people will persist in kissing the book when a simpler and cleaner form of oath has been legalized, it would seem hardly worth while to take the trouble of providing new bibles for them to infect.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, July 13, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 18, scarlet fever 9, measles 45, typhoid fever 6.

DR. H. C. TINKHAM, of Burlington, professor of surgery in the University of Vermont, has been elected dean of the medical faculty, to succeed Dr. A. P. Grinnell, who had been dean for the past twenty-four years.

NEW YORK.

THE CORNELL MEDICAL SCHOOL. — The new Cornell Medical School has secured a lease of the building standing on the grounds of Bellevue Hospital for many years past occupied by Bellevue College, and will also have the use of the Loomis Laboratory building recently connected with the New York University Medical School. As Cornell University is a "co-ed" institution, its medical department will naturally have to accept students of both sexes, and it is stated that a large number of young women have already applied for admission.

THE SUMMER CORPS OF THE BOARD OF HEALTH. — The usual summer corps of extra physicians of the Board of Health, fifty in number, for work in the tenement-house districts of the city, have been appointed, and commenced their house to house visitation the first week in July. For this season at least their field of operation will be confined to the limits of the former city of New York, now comprising the Boroughs of Manhattan and the Bronx. All that is sought is to keep a supervision over the most densely populated sections, and there can be no question that a considerable saving of life is each year effected through this means. By the detection of unnoticed sanitary defects and of incipient cases of disease among young children much good is accomplished, and the work of the visiting physicians, who are provided with tickets for distribution, is ably seconded by the St. John's Guild, the Association for Improving the Condition of the Poor, the Children's Aid Society, and other similar agencies.

THE FLOATING HOSPITAL AND SANITARY STATION. — The St. John's Guild inaugurated the work of its floating hospital and sanitary station at New Dorp, Staten Island, on July 6th, and daily trips, except Sundays, will be made during the continuance of hot weather. Among the improvements introduced this year is a diet kitchen for the preparation of modified milk, in accordance with physicians' prescriptions. The distribution of modified milk has also been introduced this season at the sterilized milk depots maintained by Mr. Strauss at the recreation piers and at various other points among the tenement population. This work, as formerly, is under the direction of Mr. A. L. Kinkead, of the Health Department. The Association for the Improvement of the Condition of the Poor has erected new and commodious buildings at "Sea Breeze," its property at West Coney Island, which has an ocean front of 350 feet. These buildings will accommodate one hundred convalescent children and sixty mothers with their babies, and afford facilities for meeting the requirements of the additional number of day excursionists which it is proposed to entertain during the present summer. There will be four all-day excursions each week, in place of three, as formerly.

OPENING OF THE PLAYGROUNDS FOR VACATION. — An important innovation having in view the welfare of the children of the poor has been made this summer, and on July 6th, the playgrounds of twenty of the public schools in the most crowded districts of the city were thrown open for the first time in the vacation season. On June 13th the Board of Education appropriated the sum of $15,000 for this purpose and referred the arrangement of the matter to a special committee. In the report of this committee, which was made to the Board on June 29th, it was recommended that the grounds should be used for play and for regular class exercises. But to avoid any semblance of restraint over the children's amusements it was suggested that supervision sufficient only to assist in the organization of games and sports should be employed. In the opinion of the committee the children of the kindergarten age would require more supervision and assistance than those of greater age, and it was thought that, in addition to games, the teaching of sewing and various kinds of constructive work might be profitably introduced. It was also recommended that on account of the nature of their work the supervisors and their assistants should be selected from kindergartners and young men and women recently graduated from college. There can be little question that by thus removing the tenement children from the streets a very excellent work has been accomplished. The Board of Education has also made provision for the usual vacation schools, where such children as desire may have the opportunity for short sessions of study during the summer.

Miscellany.

THE HEALTH OF SANTIAGO DE CUBA.

We learn that during the past ten years there have been two epidemic visitations of yellow fever in Santiago and its neighborhood, with cases scattered in the intervening years, so that the infection of the fever must be considered to be there and ready at any time, under favorable conditions, to cause an outbreak among our unacclimated men when they leave the mountains and enter the city. In November, 1890, after a period of freedom from fever, the disease was introduced into Santiago and its vicinity by workmen from Spain who had been ashore for some days at Porto Rico while *en route* to Cuba. Yellow fever was then prevailing at Porto Rico and some of the Spanish emigrants became infected. These settled in Santiago and introduced yellow fever among the people employed at the Juragua Iron Works. The disease prevailed at these works for twelve months, attaining its maximum in June, 1891, during which month there were 57 cases, of which 21 were fatal, among the 1,300 people in the employ of the Iron Company. During the twelve months the epidemic gave a sum of about 265 cases, of which 100 were fatal. A few cases occurred in the winter of 1892–93, and again in the winter months of 1894; but in July, 1895, something like an epidemic was again lighted up, lasting until November and giving 107 cases, of which 47 were fatal. The disease prevailed at these periods among the population of Santiago. Since then only sporadic cases have occurred. — *Journal of the American Medical Association.*

THE NEW SERVICE BULLET.

"A DESCRIPTION of the new service bullet which has been invented to supersede the Dum-dum bullet was published in the *Times* of June 28th. The Dum-dum bullet was introduced in India for the purpose of stopping the rush of fanatics (*ghazi*). It is a solid bullet of hardened lead enveloped in nickel all but the point which was left bare, so that on impact the bullet 'set up,' or expanded, inflicting much more severe wounds than the fully-enveloped bullet, which in most cases passed through the body unaltered, much as if it were a bolt of steel. It is stated that the new service bullet is of the same diameter (0.303), the same length ($1\frac{3}{8}$ inches), and the same weight (215 grains), as the Lee-Metford. 'The case is of nickel, the base only being left empty' (*sic*) — it is evident here that 'case' means the 'envelope' of the bullet, not the cartridge case. The conical end is left empty, and when it strikes a man burrs, opens backward, and lodges in the body, penetration being lessened and shock increased. We have not seen the bullet in question, and are dependent on the *Times* report; but as we read it the new bullet seems in some ways to resemble the later pattern Snider bullet in which there was a cavity in the conical apex, which, containing air compressed on impact, burst open violently and inflicted most severe wounds. In the bullet it would appear that the cavity will be formed by the nickel envelope being left empty in the nose or apex, and on impact the compressed air will act as an explosive, burst and burr the envelope, which, spreading open, will present a large striking surface, and cause immense injuries to trunk and limbs. It would be interesting to know if any experiments with this new bullet have been made on the bodies of animals in the presence of military surgeons, and, if so, what their report has been. Professor v. Bruns made some incisive remarks on the Dum-dum bullet, going so far as to call it an inhumane projectile; but if the new service bullet acts as it is reported to do, probably some stronger language will result."[1]

The above account of the new service bullet adopted for the British army would indicate that the principle of the Dum-dum bullet is being carried to an extreme.

The reports of the severity of the mutilations caused both by the Spanish and American bullets in Cuba, would seem to indicate that there was no present need of following the English lead in attempts to increase their death-dealing properties.

Correspondence.

REPORT OF AMERICAN MEDICAL ASSOCIATION'S COMMITTEE ON DEPARTMENT OF PUBLIC HEALTH.

MILWAUKEE, July 5, 1898.

MR. EDITOR: — Permit me to call your attention to an error that appears in the report of the American Medical Association meeting, recently held in Denver, on page 618 of your issue of June 30, 1898. The report states that I "read the report of the Special Committee on Department of Public Health." "The bill, already familiar to the profession, was referred to and its salient points outlined; the report closed with the following resolutions." Then follows a copy of resolutions, which are not correct; and after that the report states, "On motion the report was referred to the Executive Committee, with power to act."

The facts in the case are as follows: The report, together with the bill which is now pending before Congress, and which is known as the "Spooner Bill," was presented to the Association together with the following resolutions:

Resolved, That the Committee on Department of Public Health be continued; that the bill as now perfected and before Congress, and which is submitted with this report, be and hereby is approved, and that the committee be authorized to use their best endeavors to have it passed by the Congress of the United States, at such time as in their judgment it seems proper and wise.

Resolved, That the members of this Association do all in their power, by urging upon their representative members of Congress to have this bill passed.

Resolved, That this Association appropriate the sum of one thousand dollars, or so much thereof as may be necessary for the use of the Committee, in the endeavor to have this bill passed by Congress.

On motion this report was accepted. Another motion was made and duly seconded to amend the last resolution by referring the same to the Board of Trustees, as it was necessary for all matters pertaining to appropriations to be referred to that board. This motion to amend was carried. A motion was then made to adopt the report and resolutions as amended, which was carried. Thus the Association adopted the report and resolutions with the exception of the last resolution, which was referred, for constitutional reasons, to the Board of Trustees.

I make this explanation, as in times past much has been said to the effect that the Association never adopted the recommendations of the committee. It would appear on this occasion that the Association did adopt this report, and at a very full meeting of the Association.

Very respectfully yours,

U. O. B. WINGATE, M.D., *Chairman of Committee.*

[1] British Medical Journal.

METEOROLOGICAL RECORD

For the week ending July 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...26	29.70	82	90	73	60	33	50	W.	W.	17	12	C.	C.	
M..27	30.04	72	78	68	57	61	59	N.W.	S.	6	5	O.	O.	
T...28	30.02	66	71	60	87	95	91	E.	E.	8	6	R.	O.	.02
W..29	29.96	70	79	60	93	75	84	N.W.	S.	5	7	O.	C.	.04
T...30	30.04	71	80	62	96	77	86	N.E.	S.	3	12	O.	C.	
F....1	30 03	78	90	66	66	43	54	W.	N.W.	12	4	O.	C.	
S....2	30.20	74	81	67	50	58	54	N.E.	S.W.	8	12	C.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 2, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping-cough.	Diphtheria and croup.
New York . .	3,438,899	1292	578	19.04	9.66	11.90	1.68	2.03
Chicago . .	1,619,226	—	—	—	—	—	—	—
Philadelphia .	1,214,256	555	284	26.46	8.46	21.06	.54	1.80
St. Louis . .	570,000	—	—	—	—	—	—	—
Baltimore . .	550,000	285	164	9.10	7.35	2 80	1.05	2.80
Boston . . .	517,732	182	56	9.90	14.85	3.30	1.65	.55
Cincinnati . .	405,000	103	—	13.72	7.84	12.74	—	—
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	285,000	—	—	—	—	—	—	—
Washington . .	277,000	177	89	38.08	5.60	29.68	—	1.68
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	52	15	13.44	9.60	9 60	—	1.92
Worcester . .	105,650	29	10	3.45	6.90	—	—	3.45
Fall River . .	95,919	32	14	18.78	6.26	15.65	—	3.13
Nashville . .	87,754	33	11	6.06	3.03	3.03	—	—
Lowell . . .	87,193	35	15	22.80	11.40	29.95	—	2.85
Cambridge . .	86,812	25	8	20.00	4.00	8.00	—	—
Lynn	65,220	13	3	15.38	24.07	—	7.69	—
Charleston . .	65,165	—	—	—	—	—	—	—
New Bedford .	62,416	11	6	36.36	9.09	27.27	—	—
Somerville . .	57,977	11	4	36.36	9.09	9.09	—	—
Lawrence . .	55,510	20	5	5.00	15.00	5.00	—	—
Springfield . .	54,790	19	6	10.52	15.78	5.26	—	—
Holyoke . . .	42,364	17	10	23.52	17.64	11.76	—	—
Salem	36,062	7	1	—	—	—	—	—
Brockton . .	35,853	—	—	—	—	—	—	—
Malden . . .	32,894	9	2	11.11	11.11	11.11	—	—
Chelsea . . .	32,716	8	0	25.00	25.00	—	12.50	12.50
Haverhill . .	31,406	8	3	—	12.50	—	—	—
Gloucester . .	29,775	—	—	—	—	—	—	—
Newton . . .	28,990	—	—	—	—	—	—	—
Fitchburg . .	28,392	6	2	—	16.66	—	—	—
Taunton . . .	27,812	11	3	—	9.09	—	—	—
Quincy . . .	22,562	5	1	—	20.00	—	—	—
Pittsfield . .	21,891	—	—	—	—	—	—	—
Waltham . .	21,812	4	1	—	50.00	—	—	—
Everett . . .	21,573	5	4	20.00	—	—	—	—
North Adams .	19,135	1	1	—	—	—	—	—
Northampton .	17,448	—	—	—	—	—	—	—
Chicopee . .	17,268	24	14	50.00	4.16	50.00	—	—
Brookline . .	16,164	—	—	—	—	—	—	—
Medford . . .	15,832	3	3	—	—	—	—	—

Deaths reported 2,996: under five years of age 1,316; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 606, diarrheal diseases 409, consumption 291, acute lung diseases 210, diphtheria and croup 57, whooping-cough 37, typhoid fever 33, measles 26, cerebro-spinal meningitis 20, scarlet fever 18, erysipelas 6.

From typhoid fever Philadelphia 10, New York and Washington 8 each, Boston 5, Baltimore and Cincinnati 1 each. From measles New York 15, Philadelphia 5, Baltimore 4, Washington 2. From cerebro-spinal meningitis New York 7, Boston, Cambridge and Holyoke 2 each, Philadelphia, Baltimore, Washington, Lynn, Somerville, Springfield and Everett 1 each. From scarlet fever New York 16, Baltimore and Washington 1 each. From erysipelas New York 3, Philadelphia, Boston and Nashville 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending June 25th, the death-rate was 15.1. Deaths reported 3,247; acute diseases of the respiratory organs (London) 171, measles 89, whooping-cough 83, diarrhœa 61, diphtheria 36, scarlet fever 21, fever 12.

The death-rates ranged from 9.6 in West Ham to 24.3 in Newcastle-on-Tyne; Birmingham 16.2, Bradford 14.1, Croydon 10.9, Gateshead 16.6, Hull 14.5, Leeds 16.1, Leicester 12.5, Liverpool 17.4, London 14.5, Manchester 19.9, Nottingham 12.1, Portsmouth 12.9, Sheffield 15.7, Sunderland 21.4, Wolverhampton 13.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 25, 1898, TO JULY 1, 1898.

Acting Assistant Surgeon EUGENE H. HARTNETT, U. S. A., ordered from this city to duty in U. S. General Hospital, Fort Monroe, Va.

Acting Assistant Surgeon HENRY S. GREENLEAF, U. S. A., ordered to report in person to the Major-General, commanding the Army, for duty.

Acting Assistant Surgeon S. MELVILLE WATERHOUSE, U. S. A., at General Hospital, Fort Myer, Va., ordered to accompany Artillery Battalion from Washington Barracks, D. C., to San Francisco, Cal.

Acting Assistant Surgeon THOMAS A. SMITH, U. S. A., is relieved from duty on U. S. Hospital Ship "Relief," New York City, N. Y., and ordered to Fort Slocum, N. Y., for duty.

FIRST-LIEUT. FRANKLIN M. KEMP, assistant surgeon, to San Francisco, Cal., for duty with expedition to the Philippine Islands.

Acting Assistant Surgeons J. W. DONNELLY, STEPHEN M. LONG and D. T. LAINE, U. S. A., ordered from this city to Tampa, Fla.

Acting Assistant Surgeon R. FLEMING JONES, U. S. A., is relieved from duty at Fort Bliss, Tex., and ordered to Tampa, Fla.

CAPTAIN CHARLES E. B. FLAGG, assistant surgeon, ordered from Columbus Barracks, O., to duty in General Hospital at Fort McPherson, Ga.

MAJOR W. FITZHUGH CARTER, surgeon, U. S. A., ordered from Nashville, Tenn., to Tampa, Fla., for duty with 4th Army Corps.

Acting Assistant Surgeon EDWIN P. HAYWARD, U. S. A., from Kansas City, Mo., to duty in Leiter General Hospital, Chickamauga, Ga.

Acting Assistant Surgeon C. F. DE MEY, U. S. A., ordered from Louisville, Ky., to San Francisco, Cal., for duty with Philippine expedition.

RECENT DEATH.

CHARLES LORENZO KNOWLTON, M.D., M.M.S.S., died in Northampton, July 5, 1898, aged seventy-four years.

BOOKS AND PAMPHLETS RECEIVED.

Massage Gynécologique (Méthode Thure Brandt). Par Gustave du Frumerie, Médecin-Gymnaste. Paris: G. Steinheil, Editeur. 1897.

Report of the Commissioners of Education for the Year 1896–97. Volume I, containing Part 1. Washington: Government Printing Office. 1898.

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Original Articles.

APPENDICITIS.[1]

BY MAURICE H. RICHARDSON, M.D., AND G. W. W. BREWSTER, M.D.

REMARKS BASED UPON A PERSONAL EXPERIENCE OF 750 CASES; INCLUDING 150 CONSECUTIVE CASES SUCCESSFULLY OPERATED UPON "IN THE INTERVAL."

(Concluded from No. 2, p. 28.)

In two cases a Meckel's diverticulum has been demonstrated by my colleagues after a diagnosis of appendicitis had been made by myself.

Two cases have been observed in which malignant disease appeared soon after the removal of what seemed to be an ordinarily inflamed appendix. In one there was the usual history and physical signs of acute appendicitis. Operation was performed and a large abscess in the right iliac fossa was drained. Some months later the diagnosis of peritoneal tuberculosis was made by examination of the ascitic fluid that was withdrawn. We opened the abdomen and found extensive and hopeless cancerous infiltration.

In another case at the Massachusetts General Hospital the removal of a chronically inflamed appendix was followed in a few months by an extensive cancerous infiltration of the whole ileo-cecal region.

In one instance an acute epididymitis complicating mumps led us a long journey, and in three others pneumonia proved to be the cause of an acute right-sided abdominal pain. In one of these the appendix was successfully removed by another surgeon, but showed no signs of disease.

A tumor at the ileo-cecal valve was in one case supposed to be appendicular. It proved to be an acute tuberculosis of the mesenteric glands of the meso-colon. A dissection carried thoroughly as far as the receptaculum chyli was permanently curative.

In women an acute salpingitis often simulates an acute appendicitis. In some instances the infection from the tubes has invaded the appendix. A differentiation is at times impossible.

There have been included in our list, doubtless, other cases in which the diagnosis was wrong. As a rule, however, it is safe to say that the typical history, physical signs and course of appendicitis make the diagnosis plain. Excepting the cases of referred pain, as in bronchitis and pneumonia, explorations were demanded. In many of the cases of mistaken diagnosis the lesion was hopeless; in others operation was timely and successful, especially in cases of cholecystitis. In the acute obstructions the same heavy mortality followed as in most similar cases.

However imperfectly surgery has been able thus far to repair the damage, more or less irreparable, caused by acute inflammations of the vermiform appendix, the removal of this useless organ in the period of health has proved one of the most brilliant and successful operations of modern surgery.

In the early days of this operation, before its almost perfect safety had been demonstrated, — in this city by Porter, Cabot, and others, — one of the writers was inclined to oppose what seemed to be, in many cases at least, an unnecessary and unjustifiable operation. On June 14, 1893, we were called suddenly to see an intimate friend and colleague who had had three years before a violent attack of peritonitis, supposed to be of appendicular origin. In the interval he had been advised to submit to operation; we found him dying; he lived but an hour. At the autopsy a general peritonitis was found, proceeding from a gangrenous and perforated appendix. This was an object-lesson which had a marked effect. In August we performed our first deliberate appendectomy upon a young man in perfect health who had had various previous attacks of moderate severity. From that time to the present the efficacy and safety of the operation have been repeatedly demonstrated, until the procedure seems warrantable not only in the cases of repeated attacks of undoubted appendicitic origin, but even in cases in which a lesion of the appendix is only suspected; not only in these, but in all cases in which there has been only one severe attack.

The statistics of the early operations as collected by Bull showed a mortality of two per cent. It seemed then probable that, counting the unpublished cases of death, the mortality would be increased. On the contrary, in the hands of the most experienced operators, the death-rate is less than two per cent. We have operated one hundred and fifty-one times since August, 1894 without a single death.

We approach the operation with confidence, instead of with dread. Though there is in all abdominal operations an element of uncertainty, in this that uncertainty seems almost infinitely small.

Before considering those symptoms which indicate a chronic appendicitis — symptoms which constitute danger signals demanding a careful lookout and an intelligent appreciation — it seems well to discuss for a moment the anatomical and pathological peculiarities of the appendix.

First in importance is that variety of acute lesion which results in a sudden and extensive local gangrene. This is of embolic or thrombotic origin, and may without warning involve the appendix and the meso-appendix. It is undoubtedly induced by variations from the normal which invite a local infection. These variations may be owing to ulceration of the mucous membrane from foreign bodies, neoplasms, fecal concretions or tuberculosis. The infective processes may be caused by extension of inflammation from the cecum; by abnormal positions of the appendix, and by variations in size or in shape. They may result from strictures in the lumen, obstructions at various points from other causes, with consequent appendicular colic and distention with septic fluids.[2]

These abnormal conditions may induce a mild local infection with transitory pain, persistent or remittent; they may without warning result in total gangrene with a local or a general infection.

The chief question is whether these lesions produce, as a rule, premonitory symptoms. We believe that they do. Serious lesions may have been preceded by similar serious attacks, or they may have been preceded by mild attacks, by premonitory grumblings which

[1] Read before the Boston Society for Medical Improvement, February 21, 1898.

[2] Since reading this paper we have seen for the first time a complete gangrene of the meso-appendix without gangrene of the appendix. The patient was a girl of fifteen, seen March 31, 1898, at Winchester with Dr. Mead. She had had within the year two attacks of colic, with faintness, nausea and purging. The attack during which we saw her began Saturday, four days before our visit, with faintness and abdominal pain. The patient rapidly grew better, however. There was no constitutional disturbance; the bowels were free. The attack was supposed to be like the previous ones. At five o'clock Wednesday she was seized with severe pain and nausea. The abdomen became rigid; temperature 101°; pulse 128; no dulness; no tumor. The abdomen was opened at ten P. M. The appendix was enlarged, injected, unperforated. The meso-appendix was dark green gangrenous and offensive. The interior of the appendix was gangrenous. The patient made a good recovery.

ought to have been observed and recurrence provided against. In many cases an attack severe enough to produce the gravest danger has presented a history of occasional transitory pain described as indigestion, bilious attack, stomach-ache and the like. In many cases such a history of trivial pains and indigestion has been proved clinically and anatomically to be dependent upon the appendix. In many the appendix has been shown to be constricted, and to be filled with imprisoned septic fluid. Such cases undoubtedly cause appendicular colics, and may result in gangrene; for anything that interferes with the circulation of the appendix, anything that irritates its mucous membrane, may open the door for bacterial invasion. Once having entered, the bacterial process may go on to the most effectual gangrenous disorganization.

The severity of the attack is often out of proportion to the seriousness of the pathological lesion found. In some instances the appendix and its surroundings show most extensive changes when the previous history has been quite trivial. In other cases the clearest histories are followed by little anatomical change in the appendix. At times only a change in position is noticed; at others a slight constriction in lumen. That an appendix apparently normal may be the seat of a serious infection is shown by a case operated upon in the period of quiescence. In this case the patient, a young girl, had one of her usual attacks at three A. M. The operation was performed five hours later. The appendix was found to be covered with a recent greenish exudation, after the removal of which the appearances were precisely like those of an appendix which had been removed the day before and which had been pronounced to be normal. Though it be admitted that many appendices removed in the interval are apparently normal, this hasty conclusion can hardly be explained by the almost invariable disappearance of the previous symptoms.

One of the most important considerations in connection with the indications for appendectomy in the interval is the nature of the previous attacks. The preliminary attacks are in many instances so frequent and transitory, that even the most radical operator would not, we think, advise interference. In many the attacks of pain are accompanied by symptoms of indigestion. Indeed, indigestion is given as the premonitory symptom of many of the attacks, even of the severest forms. That indigestions have some bearing upon inflammations of the appendix is, we think, proved, first, by the disappearance of digestive symptoms after removal of the appendix, and, secondly, by the occurrence of undoubted attacks of gangrenous appendicitis following indiscretions in diet and acute indigestion. In support of the latter statement we would mention two recent examples. The first was a simultaneous attack of pain in the two children of a family. Both had taken something which disagreed with them, and both had attacks of acute abdominal pain, with vomiting. In one the attack rapidly subsided — the attack of indigestion, cholera morbus, "biliousness" or whatever it may be called; in the other there was a gangrenous and perforated appendix which jeopardized the patient's life, but which was successfully removed. Another still more striking instance was in a family in which three of the boys were suddenly seized with abdominal pain and vomiting. There was only one thing of which they had all eaten. All three boys had attacks of acute indigestion, accompanied by severe cramps and vomiting. Two of the boys immediately recovered. The third, the oldest boy, had severe pain, persistent vomiting, right iliac tenderness and rise of temperature. It seemed very improbable that one case should be unlike the other two — all having had apparently the same cause and the same initial symptoms. Influenced by this belief, we performed no operation during the acute stage. As the symptoms subsided, it became more and more evident that this boy had had an attack of appendicitis. We removed the appendix some two weeks after the temperature had become normal, and found signs of recent inflammation and of long-continued old inflammation; in fact, the appendix must have been for years a menace to the boy's life.

In many cases the premonitory symptoms are dependent, probably, upon a stricture in the canal of the appendix, and are owing to a spasm of the appendicular muscles. As demonstrated by Abbe's method of alcoholic injection there may be in these cases, one or more strictures in the lumen. The symptoms in this class of cases are severe but transitory pains in the region of the appendix. In some instances the restrained fluids cause sufficient distention to make palpation of the appendix possible. In this class repeated attacks of colic, unaccompanied by constitutional or other symptoms except possibly vomiting, are most important symptoms. In such cases, after one or more attacks of colic, the patient may develop the severer type — that accompanied by local infection, gangrene and perforation.

In a large percentage of the cases the premonitory attack is a definite, unmistakable appendicitis with a localized and more or less extensive peritonitis, accompanied by tumor. In considering the significance of an early attack in cases of this kind, and in deciding upon the best time for interference, we must bear in mind that these cases of localized peritonitis show unmistakable signs of their recent origin and that the exudate may be actively septic.

It may be said with reference to the symptoms of the early attacks that in all in which there is no physical evidence of localized peritonitis the diagnosis may be in doubt. The cause and nature of the symptoms must therefore be scrutinized with the greatest care to avoid unnecessary operation. In some cases the right-sided pain may be owing to a spasm of the colon, dependent upon some functional or organic disease of that viscus; in other instances it may be owing to a renal stone; in still others, to neurasthenia. The frequency of right-sided abdominal pain in neurasthenic women must be admitted, and the value of the symptom in patients of this class must be carefully weighed.

But whatever the difficulties of diagnosis, however grave the dangers of a secondary attack, it must be borne in mind that removal of the appendix, even after symptoms which in themselves seem trivial, is not depriving the patient of a useful organ. Arguments against frequent resort to mutilating operations, like normal ovariotomy in cases of persistent ovarian pain, or in cases of the imaginary pain of neurasthenia — arguments against an operation which deprives the patient of a useful organ — do not apply to the removal of the appendix for similar and trivial reasons; for in removing the appendix we are taking away an organ which in a very considerable proportion of the population is a menace to health and even to life. Patients convalescing from the operation have a feel-

ing of thankfulness that the appendix is removed, even if the pain for which the operation was performed still persists; they know at least that the pain is not appendicitis, and that they run no risk from that widely-dreaded disease.

Years of immunity after one attack of appendicitis, give no security against a second. In several of the worst cases we have seen in adults, the first attack occurred in childhood.

The chief point in connection with the premonitory signs is to recognize the significance of slight symptoms. In definite cases with localized tumor, or other signs which point unmistakably toward a chronic appendicitis, the advisability of interference is unquestionable. In uncertain cases, however, it is at times extremely difficult to weigh properly the evidence pointing toward a chronic lesion. When there is doubt, it seems best to give the patient the benefit of that doubt and to operate.

In the 150 interval cases there has been a great variety of pathological conditions, and a wide range in the symptoms by which the operation was justified. The symptoms varied, too, with the lesion upon which they were dependent. The difficulties of operation depended largely upon the type of inflammation. In all cases in which the disease was confined to the appendix, and in all cases in which the symptoms were dependent upon a faulty position and shape, the operation was comparatively easy; in cases in which there had been a localized peritonitis, or in which the disease had been of many years' standing, it was extremely difficult. In some cases of long standing the appendix was found so buried in a mass of fibrous adhesions that it was impossible to tell where the bowel ended and the appendix began. Once or twice the inner layers were separated from the outer, a mucous tube being extracted from a fibrous cylinder, not unlike the unsheathing of a sword.

In some cases the operation was difficult from the remote situation and firm adhesions of the appendix; in others the appendix was withdrawn from the wound with the greatest ease. In no case did we fail to find the appendix and remove it. In all chronic cases except the earliest, McBurney's incision was used whenever possible. A non-adherent, deliverable appendix requires a very short cut in a thin-walled abdomen; an adherent appendix a longer one. We have been seldom obliged to abandon the McBurney cut. This method seems to us on the whole the best. In several instances the appendix or its surroundings have had a suspicious look; there have been yellowish masses, or a grumous fluid, or distinct pus. In these cases we have invariably drained for forty-eight hours. The rapidity and thoroughness of the convalescence have not been interfered with. Several of the few cases which have been fatal in the hands of others have been sewed up without drainage. There need be but a single wick going down to the suspicious area. This is removed in forty-eight hours and the wound closed with a stitch left in provisionally at the time of operation. The appendix and its mesentery are tied off with silk, great care being taken to provide against hemorrhage. The actual cautery is used to separate the appendix. Its stump is burned close to the ligature, and the whole depressed into the cecal wall, and buried there beneath four or five fine silk sutures. The wound is closed by one or more silkworm-gut sutures.

Convalescence requires two weeks, the patient going home on the fourteenth day. In the list of chronic cases many unusual and interesting ones are included, but our limited time does not permit even a passing allusion to them. With but one or two exceptions the symptoms have disappeared after operation. It is interesting to note that there have been, long after appendectomy, two attacks of what would be confidently diagnosticated as appendicitis. In one case there was only pain; in the other pain, tumor and fever; the latter was an acute case. The results, with these few exceptions, have been so gratifying that but one opinion can be entertained as to the value of the operation. From a feeling of strong doubt as to the advisability of the operation in the interval, we have been led to one of confident enthusiasm; from one of extreme conservatism to one of marked radicalism.

With reference to the treatment of acute appendicitis, on the other hand, we feel more inclined to conservatism than formerly, provided only that we can see the case in the first hours of the attack with the opportunity of careful observation. When we see a case in which we are in doubt about interference, we are often influenced by the patient's distance from surgical aid. One may safely watch for the most favorable moment in a case in a hospital when he would not delay if the case were in a remote town. The safest plan, on the whole, is to consider each case as it stands, operating in some, delaying in others, the question of operation and delay to be decided only by those experienced in the disease. The safety and efficacy of the interval operation make it desirable whenever possible to bring the patient through his acute attack without operation. Severe cases, however, should not be allowed to run in the false hope that an operation can be avoided.

SOME MODERN METHODS OF THE TREATMENT OF PHTHISIS, AND ITS SYMPTOMS.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

(Concluded from No. 2, p. 34.)

UNDER general medication I shall speak only of creosote, the alkaline hypophosphites, strychnia, arsenic, and iodoform.

Creosote, known in the days of Louis, and of late years popularized by Sommerbrodt, is perhaps as extensively used at the present time as cod-liver oil. No drug could have retained its hold so long without possessing intrinsic value. Opinions differ as to its action; the extremists hold that it has a specific effect upon the disease and its bacillus; the conservatives, on the other hand, believe its value consists simply in improving nutrition and thereby increasing the resisting power of the individual. "It has the power," says Whittiker, "of destroying the lower organisms, especially those of fermentation, hence the undeniable virtue of creosote is chiefly nutritional." All who have used it to any extent in phthisis can bear witness to the fact that the cough and expectoration are lessened, the weight increased, and the appetite, digestion, and general condition improved. It is contraindicated in gastric or intestinal catarrh, fever and hemoptysis, and where it appears to injure rather than to improve digestion. The dose varies with different practitioners, and whether they hold one or

[1] Read before the Massachusetts Medical Society, June 8, 1898, and recommended for publication by the Society.

the other theory regarding its action. Those who believe in some specific action give large doses, sometimes as much as a drachm, three times a day. I begin with one or two minims and gradually increase to ten, not as a rule going beyond that. I use the plain beechwood creosote, giving it in milk, cod-liver oil, malt or wine, or with gentian or other aromatics, and continue its use for months. Guiacol, a derivative of creosote, has essentially the same action as the latter; it has nothing to recommend it above creosote except its less objectionable taste, and its being somewhat less irritating to the gastric mucous membrane. Carbonate of creosote (creosotal) has lately come into extensive use and is said to be the most eligible preparation of the drug, being free from its nauseous odor and burning taste and less likely to cause gastro-intestinal disturbance. Seifert[4] gives the following method of using it in Leyden's wards in Berlin. Beginning with a dose of five drops, increasing three drops daily, a maximum of 25 is reached and continued from one to four weeks, or even longer. The dose is then diminished in a similar ratio to 10 drops and then eventually the ascending scale is begun again. Used in this way it is said to be cheaper than creosote. Whichever one of these creosote preparations is used, it should not be used blindly, and when digestive disturbances are excited, or no symptomatic or general improvement is apparent, it should be discontinued.

The alkaline hypophosphites, in this country and England at least, are very extensively employed in phthisis, particularly in its earlier stages and with the young. There is no evidence that they exercise any specific influence upon the disease, but their chief effect seems to be in improving appetite and nutrition and allaying nervous excitability. They also influence favorably night-sweats. Daremberg[5] says that there is a great loss of phosphates from the bodies of phthisical persons in the sputum and urine, and further, that the calcareous masses found in the lungs are chiefly phosphates and carbonates of lime and magnesia; hence he thinks that the hypophosphites are of value in aiding the formation of fibrous tissue which contains much phosphates and carbonates, and in producing calcification of tubercle by furnishing to the organism one of its constituent elements. Hodgkinson[6] is also of this opinion, especially when the disease is local and quiescent, and thinks the efficacy of the hypophosphites is enhanced by using them in conjunction with cod-liver oil. Whether anything of this kind actually happens seems to me doubtful; probably the chief, if not the only value of the hypophosphites is in promoting nutrition. In pyrexia they are contraindicated.

Strychnia I have used extensively, and it has seemed to me to be of more than ordinary value, not only as a tonic to the digestive system, but for its general effect upon the heart and respiration. Mays[7] considers this drug next in importance to physical rest and nutritious food and gives it in heroic doses, from one-thirty-second to one-seventh of a grain at a dose; he refers to one patient who took one-sixth of a grain four times a day uninterruptedly for two months. Dr. C. J. B. Williams,[8] late of Brompton Hospital, says that strychnia may be regarded as a specific against the retching of phthisis, and he gives it in doses of from one-thirty-second to one-twenty-fourth of a grain. By the use of this drug, he says, patients have been able to persevere with cod-liver oil for months and even for years without digestive derangements.

Arsenic only has value in this disease as a useful tonic in aiding nutrition and stimulating assimilation. There is no evidence for regarding it as some observers have done, as an anti-bacillary medicine. The French physicians are unanimous in ascribing to it exalted value. "It would be difficult," says Jaccoud,[9] "to find an agent more capable of resisting the consumptive tendency which exists in every form of the disease." Its value, Jaccoud says, depends upon its power of combating malnutrition always existent in the disease. C. J. B. Williams considers arsenic the most useful tonic next to strychnia, checking slight pyrexia and night-sweats and improving the respiratory powers. It is best administered after food.

There is but one other drug I shall refer to under the head of general medication, the extensive use of which would seem to warrant its mention; it is iodoform, either used as such, or in the form of its substitute, europhen. So far as evidence has accumulated regarding it, its chief effects appear to be an improvement of the appetite, increase in weight, and a diminution of the cough. Ransome, who is careful in his statements, says he believes it is one of the best of the medicines that can be given for the purpose of assisting nutrition and alleviating cough. Flick applies europhen by inunctions, using the following formula:

℞	Europhen	3i.
	Oil of Rose	gtt i.
	Oil of Anise	3i.
	Olive Oil	3 iiss. M.

Rub about a tablespoonful thoroughly into the inside of the thighs and into the arm-pits before retiring at night. If the odor is objectionable the patient can be sponged with bay rum in the morning.

When one considers the limitations of the few remedies above enumerated, the best of the thousands which, at one time or another, have been suggested and used in the treatment of phthisis, he must attest the truth of Lænnec's conclusion "that although the cure of tuberculous phthisis is possible for nature, it is not so for medicine."

I have purposely refrained from referring to the therapeutic use of tuberculin and its derivatives, both because the subject has recently been presented to this Society,[10] and also because in this paper I desire to present such methods as are more easily and universally applicable and have been longer tested. Although I am hopeful as to the future possibilities of tuberculin, I do not believe its uses and limitations have been as yet sufficiently determined to warrant dogmatic statements. In passing I will say that my experience with tuberculin for diagnostic purposes has satisfied me that it is a most valuable test, and, when used in proper doses, without injury to the patient.

Under symptomatic medication I shall refer to the fever, sweating, cough, hemoptysis, digestive disturbances, and vomiting.

Fever may exist at any stage of the disease, either

[4] Lancet, April 2, 1898.
[5] Ransome: The Treatment of Phthisis, 1898, p. 153.
[6] Ransome, loc. cit.
[7] The Strychnine Treatment of Pulmonary Consumption, 1894. Reprint.
[8] Williams: Pulmonary Consumption, 1897, p. 391.
[9] Curability and Treatment of Pulmonary Phthisis, p. 141.
[10] Vide Dr. Worcester's paper before this Society, 1898.

when the infection, so far as we can tell, is a pure tubercular one, or when the mixed infection has taken place and the fever is that of sepsis. It has been maintained that a pure tubercular infection is afebrile, but the evidence does not seem to corroborate this view, for we have fever when neither the streptococcus, staphylococcus or other micro-organisms other than the tubercle bacillus are found. This symptom is of extreme importance both as regards the prognosis and treatment, for so long as fever exists we know that the disease is active and improvement as a rule cannot take place. In this disease, as in most others accompanied with fever, one must bear in mind that fever is one of the results of the general disease and not a disease itself, and consequently our efforts must be directed to the disease and not primarily to the fever. In the majority of cases the fever which we meet with is of the septic or hectic kind of a remittent or intermittent type, reaching its highest point in the latter part of the day and its remission or intermission in the morning, although this curve may be reversed. It is generally accompanied at one time or another in its course by night-sweats and chills. The effect is the same as in other septic fevers, a loss of weight and strength, impairment or loss of appetite and various nervous phenomena.

The treatment, as I have said, is one directed to the general condition, hygienic rather than medicinal. Rest of body and mind in a pure, dust-free air, and good and easily digested nourishment. By this means, Schröder, of Hohenhonnef, says he has succeeded in reducing the temperature to normal in a large number of cases, and in putting the patients into the category of those who endure their tubercular infection without rise of temperature. Rest should be the absolute rule for fever patients, as I have already observed. Of course there are individual exceptions, for individualization must always be made in this disease. Where a long confinement is evidently doing more harm than the fever, the appetite and digestion are failing, and the courage waning, it may be the least of two evils to allow the patient to move about a little, especially when for a certain portion of the day the temperature is nearly normal.

The food in phthisical fever should be abundant and rich in fat and carbo-hydrates. It should be carefully and delicately prepared, and given in small quantities and frequently. If the appetite and digestion fail a liquid diet may have to be resorted to, composed largely of milk, either plain or in the form of koumiss, kefir or peptonized. As I have said above alcohol is indicated, a glass of strong wine or a teaspoonful of brandy in milk several times a day, especially when a chill is apprehended. Sponging with cool water or mixed with alcohol or vinegar night and morning; cold water compresses applied to the chest; an ice bag over the cardiac region if the heart is rapid, are some of the hydropathic measures of service. Antipyretics are only to be resorted to, in my opinion, when the other means fail and the fever causes annoying symptoms, such as disturbance of sleep and the like. At the best they only exercise a very transitory influence, with more or less resulting depression. When used the choice may be either antifebrin, phenacetine, antipyrin or lactophenin. If the heart is weak, caffein or strychnia can accompany them. "Nothing in my practice," says Ransome, "has done so much to relieve the patients (of fever) as fresh air, and sponging with cold vinegar and water. Fresh air night and day before everything else."

A symptom intimately connected with, and so frequently dependent upon, fever is *night-sweats*. We may, however, have excessive night-sweats when the fever is very slight, as in early stages of the disease, or later on when it is of a mild type. In either case the ultimate cause is some disturbance of the central nervous system, probably toxemic, acting either through the sweat centres or those of the vaso-motor system. When the sweating is an incident of the fever the treatment of the latter is the treatment of the former, and when one subsides the other will. When, however, the sweating is out of proportion to the fever, or it becomes an annoying and depressing symptom, especial treatment is indicated. Here again hygienic-dietetic measures are of most value. A good meal in the evening, and a glass of milk with two or three teaspoonfuls of brandy the last thing at night, repeated, if necessary, during the night, or if not this, some simple food; dry or moist rubbing with acidulated water at night, and compresses to the chest, all the while the patient being allowed an abundance of fresh air. If these means fail, drugs are the last resort. Strychnia is indirectly valuable as a tonic to the depressed nervous system. Of the specific antihydrotics, we have several, and I know of no means, except by trial, of determining which will succeed in any case. One after another has to be tried until the successful one is found. The most generally successful I have found to be camphoric acid, 30 grains; picrotoxin one one-hundredth to one-fiftieth grain; agaricin one-twelfth grain; and atropia one-sixtieth grain; the order indicating their value. Agaricin should be given six or eight hours before the usual time of the commencement of the sweating, camphoric acid an hour or two before, and atropia or picrotoxin at bedtime. The patient should be well covered in bed with woollen blankets and sleep with open windows.

Of all the symptoms of phthisis, *cough* is the most constant and evident one. "If I can only get rid of the cough; give me something for the cough," is the oft-repeated and pathetic appeal of the poor consumptive. In the first place, the patient must be made to understand that cough to a certain extent is necessary, and is to be promoted and favored. Beyond this necessary and conservative amount, however, there is the unnecessary, which exhausts the strength, interferes with nutrition and disturbs sleep.

By our management of the cough, two things are to be accomplished: to reduce to a minimum the amount necessary for the expectoration, and to stop the irritable unnecessary coughing. In the cough of expectoration one can learn to accomplish the results with the least expenditure of strength. The tendency to cough can be restrained until the expulsion of the secretion is easy or almost comes of itself. Exercise in the open air is said to facilitate this, when exercise is allowable, as well as pulmonary gymnastics. In the spasmodic cough unaccompanied by much if any expectoration, besides the control which the patient by training can exercise, various simple means will further aid, such as counter-irritation, a sip of water or milk, warm milk with salt, seltzer or apollinaris water, pastiles of Iceland moss or gelatine, gum arabic, a wet compress over the chest. The degree to which cough can be controlled by the training is admirably illustrated in the German sanatoria, where

one sees a hundred or more phthisical patients together at dinner and hardly hears more coughing than would occur in an assembly of an equal number of well people. The coughing which occurs directly after eating, rest in the recumbent position will sometimes obviate. The common morning attack of coughing, one of expectoration, often so prolonged and severe, can frequently be modified in intensity and duration by taking on awakening a glass of warm milk with a little soda or salt, or an alkaline drink, such as vichy, seltzer or soda, with a teaspoonful or two of brandy or rum in it.

Of medication, the one drug which I have found more serviceable than all others is codeia, and indeed I rarely use any other. I am accustomed to use it in the form of a one-per-cent. solution. It does not disturb the appetite or digestion, or cause constipation as the other preparations of opium are likely to do; a couple of teaspoonfuls of this solution will generally give a good night's rest. "Again I would insist," says Ransome, "that fresh air and plenty of it is the best remedy for cough, especially when this is at all spasmodic in its character. Over and over again I have noticed the cough cease entirely as long as the patient was in the open air, and come on again on the return within doors."

Hemoptysis occurs in about 50 per cent. of all cases of phthisis, and may happen and prove fatal at any stage of the disease. Jacobi speaks of having seen a fatal case in a patient who had never presented any symptoms, or been suspected of having any tubercular disease. Vascular tension and degeneration of the walls of the vessels are the two causative conditions, and it is evident that in treatment we can only expect to directly influence the former. There is a diversity of opinion as to how this can best be accomplished, and consequently a diversity of treatment. There are certain general rules, however, which are applicable to all cases. First, the patient must be maintained in a complete state of rest both mental and physical; and this alone in many cases will suffice. Secondly, and as more thoroughly accomplishing the first, is the use of opium in some form, preferably morphia subcutaneously; by it the nervous excitement is controlled and the cough restrained. The general usage is to give the nourishment cold, as iced milk and the like. While not considering this necessary, it should be simple and unstimulating, and perhaps best in the liquid form. The value of external applications seems to me doubtful. The ice bag on the chest or over the cardiac region is the most common one, but its efficacy is questionable and it may do harm. Counter-irritation in the form of mild mustard plasters to the back and sides of the chest, or dry cupping, seems more reasonable. Experience in the use of drugs varies greatly, probably because they have been used empirically rather than with a regard to the underlying pathological conditions.

In most cases of bronchial hemorrhage what we desire to accomplish and all we can indeed accomplish is a lowered pulmonic vascular tension, and this we can effect by a general depression of the blood pressure as well as a reduction of the amount in the lungs. The means that serve for this purpose are: atropia, ipecac, saline laxatives, salt, and the application of constricting bandages to the extremities. In a case of moderate severity, where the pulse is of fair strength, I would outline the treatment as follows:

Complete rest, opium, salt dry on the tongue, a saline cathartic and aconite, or some other general vascular sedative according to the tension. If ipecac is used it should be given in sufficient amounts to maintain nausea. When the hemorrhage is profuse, besides rest, opium and salt, ligature of the extremities and from one-fiftieth to one-twenty-fifth grains of atropia subcutaneously are indicated. The atropia causes vaso-motor paresis, thereby diverting the blood to the periphery. When the obstruction in the lungs and the coagula in the upper air-passages produce dyspnea and cyanosis, threatening suffocation, attempts should be made to dislodge the clots from the larnyx, and champagne, ammonia, or other stimulants are indicated. If the hemorrhage appears to be passive from cardiac weakness, digitalis and alcohol may be used. In the sudden and excessive bleeding in the latter stages of the disease, from the rupture of an aneurismal sac, nothing avails, and I have had a patient die almost before the nurse could cross the ward. I am doubtful if the astringents are of any great value, although they are perhaps oftener used than any other class of remedies, especially ergot. Those which appear to be the best for this purpose, if any are used, are turpentine in five-minim capsules every four to six hours; oil of erigeron from five to 20 drops or more, and the fluid extract of hydrastis canadensis, from 20 to 30 drops.

Chronic Dyspepsia is a common and annoying condition in this disease, represented by a variety of symptoms: failure of appetite, vomiting, heartburn, a fulness after eating, and other unpleasant sensations dependent upon digestive disturbances. The most important part of the treatment is the regulation of the diet, together with the open-air life. Milk, either as such or in the form of kefir or koumiss, is always available and useful. Frequent feedings of small amounts of easily digestible food are indicated, broths, bouillon, eggs, chicken, meat extracts, fish, sweetbreads, oysters, preferably raw, various kinds of farinaceous food. Sometimes an almost exclusive diet of beef is best borne. Perhaps the food can be better taken cold than warm.

If there is a tendency to diarrhea, two or three teaspoonfuls of brandy in milk and lime-water may be given, or if, on the other hand, constipation exists, some alkaline mineral water can be used to dilute the milk. If the digestive ferments are deficient in quantity or quality, peptonized foods are of service, together with nux vomica or some of the bitter tinctures and hydrochloric acid. When a catarrhal state of the stomach is present, indicated by a red tongue, pain after food, flatulence and perhaps nausea and vomiting — so frequent a condition in the latter stages of the disease — a little opium with bismuth, perfect rest after eating, moist compresses over the gastric region are some of the remedies. If creosote is being taken it should be omitted. If there is fermentation, some of the intestinal antiseptics, guiacol, creosote, bismuth, charcoal and the like may obviate this symptom.

Vomiting is a symptom which demands our most careful attention, for it attacks nutrition at its source, and as Darenberg says, "the stomach is the stronghold of the consumptive, and alimentation the principal means of defence." It occurs most frequently at the initial and terminal stages of the disease. It may be caused (*a*) by the cough directly, much as in whooping cough; (*b*) by reflex cough; (*c*) by abnormal gastric

conditions, catarrhal and dyspeptic. When the cough is the direct cause, as when the patient arises from bed in the morning and has a paroxysm of coughing accompanied by retching and vomiting, the treatment of the cough is in a measure the treatment of the vomiting. But we cannot wholly prevent the cough, nor would it be wise to do so, for it is often one of expectoration. In a large number of these cases it has been found that pharyngeal hyperesthesia [11] exists, and the irritation of this sensitive area in the throat either by the cough or expectoration excites a momentary reflex nausea terminating in vomiting. If then we suppress this hyperesthesia we stop the vomiting, and this can be accomplished in the majority of cases by applying to the pharynx a solution of cocaine by spray or brush.

Food passing over the hyperesthetic throat may also produce the same phenomena, namely, cough and vomiting; and here the application of the cocaine should be make just before eating. Vomiting from reflex cough, occurring during or soon after taking a meal, is attributed either to the presence of food in the stomach through irritation of the gastric terminals of the pneumogastric, or to an increased secretion in the air-passages caused by the stimulus of the circulation produced by the food, or, as Berthier thinks, from the same cause as the former kind, pharyngeal hyperesthesia. At all events, the throat should always be examined in these cases and treated if the condition exists. If the first cause appears to be the dominant one, primarily very careful attention must be given to the feeding. The food must be taken in small quantities, sometimes limited to liquids, sometimes to solids, and slowly and thoroughly masticated. Gastric sedatives are also indicated: a few drops of laudanum in water, codeia, bismuth with three or four drops of diluted hydrocyanic acid, tincture of iodine from one to ten minims, chloroform water shortly before meals or strychnia an hour before, and after eating a few drops of hydrochloric acid in water. Oxalate of cerium, the bromides, or creosote may also be tried, if other means fail. A glass of warm water at the beginning of the meal, or a little brandy or whiskey diluted with some mineral water during the early part of the meal may also be of service.

When the exciting cause seems to be the increased secretion in the air-passages from stimulus of the food, free expectoration is to be promoted and the air-passages cleared before the taking of food. This may be accomplished by a warm stimulating drink half an hour before the meal, a cup of hot milk with some alkaline water and a teaspoonful or two of brandy or whiskey, or beef tea or broth with a teaspoonful of brandy. The meal is then to be a dry one and a little pepsin and hydrochloric acid taken after it. If, in spite of treatment, vomiting ensues it is advisible to try a little food immediately after. If the vomiting is caused by definite gastric symptoms, these should have their appropriate treatment, as indicated under the head of digestive disturbances. When the vomiting persists in spite of all treatment and a fatal issue seems imminent, or the patient is becoming rapidly emaciated and enfeebled, the last resource is opium freely used.

In the treatment of phthisis the physician must gird himself for a long, hard, persistent struggle and be prepared for many a reverse, but success comes frequently enough to inspire him with courage and hope. To have snatched a single life from the grasp of this relentless monster is a source of infinite satisfaction.

[11] Berthier: Revue de la Tuberculose, 1893, p. 1.

SOME PRACTICAL ASPECTS OF THE "SUMMER DIARRHEAS."

BY JOHN W. BARTOL, M.D., BOSTON,
Assistant Physician to Infants' Hospital.

The cases admitted to the Summer Hospital at Rainsford Island may be said to typify very well the general run of the so-called *summer complaint* in its common varieties, and the return of the heated term is my excuse for publishing brief notes on a few of these cases, simply as a reminder of the more important factors in causation, and of the necessity of regarding every case as serious in its possibilities, until convalescence is thoroughly established. The varieties above referred to are, in fact, more of degree than of kind; but a sharp line of distinction can be drawn between the simple, non-infective forms on the one hand, and the toxic fermental type on the other; and further fairly sharp divisions may be made within these lines for the purpose of description, so that we may classify under the head of simple diarrheas such varieties as the following:

(1) Diarrheas of nervous origin; that is, those caused by an exaggerated peristalsis excited by such various conditions as fright, exposure to changing atmospheric conditions, fatigue, or reflex irritations of dentition.

(2) Those caused by the purely mechanical irritation of undigested food, which either from its nature is positively indigestible, or remains undigested owing to lowered functional activity.

(3) The important class which, for want of a better name and possibly also on account of imperfect investigations, must for the present be included under the general descriptive term of *acute intestinal indigestions*. This division has been restricted by the official classification of the American Pediatric Society chiefly to the indigestions of duodenal type; but it seems reasonable to include in it, for the time being at least, or until more careful study places them elsewhere, those cases of acute type characterized by copious and frequent stools containing large amounts of undigested food but not containing fermental bacteria nor presenting the clinical appearances of the so-called mycotic diarrheas.

These are the three important varieties included in the simple or non-infective class; the leading characteristics of which from a pathological point of view are, that they are not associated with bacteria other than the ordinary intestinal occupants, and are not accompanied by any lesions of the mucous membrane. As we turn from these simple forms to consider for a moment the second or infective class, it is well to emphasize in our minds the fact that in all cases of this latter class we find the fermental or putrefactive micro-organisms, and associated with their presence, in all cases, lesions of the mucous membrane, varying from the slightest involvement of the superficial epithelium to the ulcerative processes of the more serious inflammations.

Once started, however, an intestinal disorder of the simplest variety, that is, non-infective, may at once become infected, and, passing quickly through the

various steps, rapidly take on serious aspects and terminate fatally.

The second or infective class may be roughly divided into two categories: the first including the ordinary fermental diarrheas without serious lesions of mucous membrane; and the second *those* attended by deeper inflammations and ulceration. It is the first of these that includes an overwhelming majority of all cases of summer diarrhea. This is the type so familiar to all, masquerading under the various names of summer complaint, gastro-enteritis, cholera infantum, acute milk infection, and mycotic or fermental diarrhea. In the light of modern knowledge it is certainly best to use one of the last two names as indicating the etiological factors, and it is further very desirable that the use of *cholera infantum* should be closely restricted as a descriptive term simply applied to such cases as are attended by *excessive* purging and vomiting. That such cases are rare, in spite of mothers' estimates of 20 to 30 dejections daily, it seems fair to assume from the fact that among 218 consecutive patients admitted to the Summer Hospital at Rainsford Island there was not a single case that could be said to approach the choleriform type. On the other hand, the fact should never be lost sight of that it is by no means the number or obvious character of the dejections that should serve as the only or even the chief factor in establishing the prognosis; on the contrary, in a great majority of cases it is the degree of toxemia that determines the course of the disease, and on the theory of elimination of toxins with the dejections we may have the amazing paradox of a diarrhea alarming because of the *infrequency* of the stools.

The toxic elements are *usually* produced within the intestine by some of the ordinary forms of saprophytic bacteria (the familiar hay bacillus, for instance, being prominent among them) which are taken in with the food; but the fact should not be lost sight of that the active poisons may be elaborated in the food before ingestion and that no sterilization (much less Pasteurization) will effect the ptomaine products thus formed — an emphatic reminder of the importance of thorough investigation of source and previous care of milk, as well as of the methods of its preparation.

The diarrheal diseases are all much commoner in hot weather, it having been shown by Seibert that a minimum temperature of 61° F. prolonged for several days marks the beginning of the summer epidemics; but it is, of course, especially the fermental form that comes into prominence at this time, and it is to this type that we owe the enormous increase in mortality rate. Now, since the mildest case of simple diarrhea may suddenly or by slow gradations assume the character of the severest infective forms, it is not necessary to reiterate the importance of watchfulness and the institution of active measures for alarming symptoms as soon as they occur. What marks, then, the change from mild to serious, or how shall we decide on first acquaintance with a case as to its probable seriousness?

The most natural answer to this question would seem to be a reference to character and frequency of stools; that green dejections, for instance, mean fermentation, and that a total of ten stools in twenty-four hours, for example, is hardly a serious diarrhea. In regard to the first proposition, however, it should be remembered that often in mild forms of indigestion the stools when passed, or soon after, are colored green by biliverdine; furthermore that, apart from the impracticable bacteriological test, there is no absolutely characteristic sign of the presence of fermental bacteria. In regard to the second, attention is called to the report of the fatal cases below, in no one of which did the dejections for twenty-four hours surpass ten.

It is then, as intimated above, the toxic symptoms that in the vast majority of serious cases are the ones that should arouse our apprehension and stimulate the carrying out of the most stringent measures possible for relief. The toxic elements produce their effect through the nervous system and are manifested objectively by the presence of one or more of the four following conditions: (1) high temperature; (2) marked restlessness, incessant movements, sleeplessness or vigil; (3) notable prostration and the collapse of cardiac depression; (4) reflex vomiting.

As illustrating these various conditions, I have chosen brief reports of a few cases from the hospital records. The choice was purposely made of cases terminating fatally, as they emphasize best the, at times, irresistible progress of the toxic process. Consideration of the forms of diarrhea dependent on extensive involvement of the intestinal wall has been omitted, owing to their comparative rarity, and to the fact that they are, as a rule, a chronic development of the acute form.

CASES CHARACTERIZED BY MARKED RESTLESSNESS OR VIGIL.

CASE I. Entered with history of illness of two weeks' vomiting and eight to ten black dejections daily. The striking point at entrance was persistent tremulousness of hands and arms. The eyes were staring, the pupils at times unequal. The head was somewhat retracted, but not stiffly so. In forty-eight hours he had only six dejections, four of which were yellow and two green.

CASE II. After entrance averaged four to five slimy green dejections daily, vomited much. During last three days and nights of life *slept only in naps about a minute's duration*. Constant vigil.

CASE III. This case was notable simply for marked distention and great restlessness. The number of dejections did not rise above seven per day.

CASES CHARACTERIZED BY COLLAPSE.

Such patients were, as a rule, obviously of low resisting power; but it is an effect to be apprehended even in the robust.

CASE IV. This child was said to have been ill only two days, and was having only about seven slimy green dejections in twenty-four hours.

CASE V. The history of this case before entrance agreed with the continuation in the hospital, namely, six small, dark green movements in the twenty-four hours, and more or less vomiting.

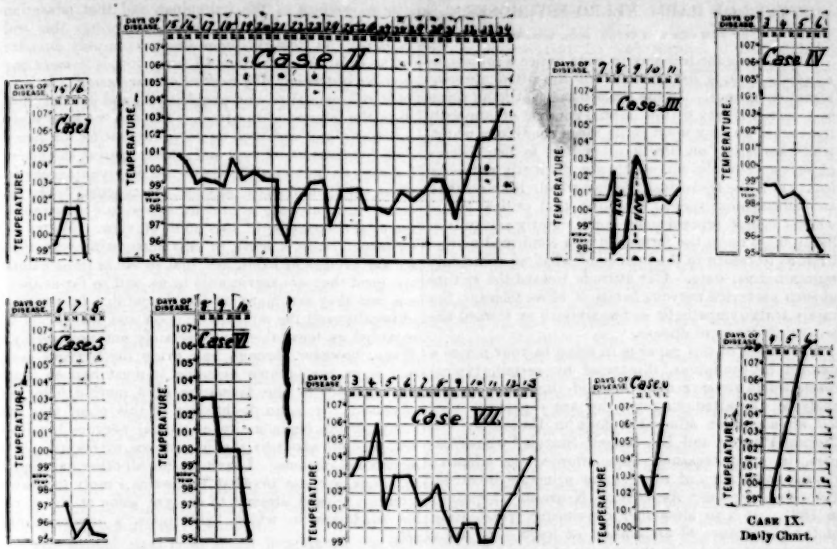
CASE VI. This patient was in collapse at entrance, and had been ill a week. The dejections were green and watery with much mucus, but numbered only fourteen in forty-eight hours.

CASES CHARACTERIZED BY HYPERPYREXIA.

In these cases the temperature was temporarily dropped from one to five degrees by administration, at intervals of two to three hours, of cool baths or injections.

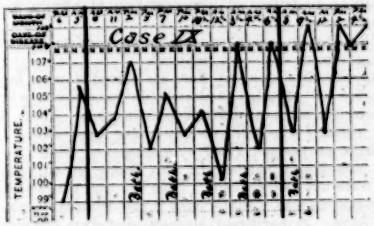
CASE VII. Never more than ten dejections in twenty-four hours, green and watery. Took food badly. Dejections improved somewhat in character.

CASE VIII. No history of this case was obtained. During the first day there were four dark green dejections; during the second, seven.



CASE IX.
Daily Chart.

CASE IX. Said to have been sick for three days before entrance, with vomiting and diarrhea. After entrance had five slimy, yellow dejections.



Three-Hourly Chart.

In regard to diagnosis, it may be added that no case is here reported in which the differential was not carefully considered and pulmonary affection or meningitis excluded.

All patients were under two and a half years. Temperature in all instances is rectal.

Since this paper is obviously making no claim for originality, it may not be out of place to mention briefly those measures of treatment which have seemed of most practical value. The list is short, and may be said to comprise, according to the indications of the individual case, — (1) a purge (calomel or castor oil); (2) abstinence from milk in any form for twenty-four to thirty-six hours; (3) full stimulation; (4) irrigation of the bowel, thoroughly and persistently carried out, with high injections of unirritating solutions; (5) in cases with pyrexia, cold water in form of baths or packs, best combined with mustard for stimulation of surface circulation.

With the injection of saline solutions into the subcutaneous tissue I have no personal experience, but believe that it should find its value in supplying the loss of body fluid in the choleriform cases.

The exhibition of some of the bismuth preparations, either with or without salol or other antiseptic, is of undoubted value when it is feasible to get the little patient to take it in quantities large enough to do any good.

The fallacy of increasing the amount of poison that the system has to battle with by the administration of opium during the acute stage needs no exposure.

When milk must be stopped for a day or two, a substitute for the fluid thus cut off should be given in the form of barley-water or rice-water, which contain a small amount of nourishment; or wine-whey, which amounts practically to a solution of milk-sugar. These should be given often and in small quantities, and either hot or cold, as best taken and retained. Return to more nourishing food should be made with great caution, the first trial being made with milk so modified as to be weak in fats and proteids, or with beef-juice; the former being peptonized if necessary.

Persistent vomiting may often be checked by stomach washing.

A BIOLOGICAL INSTITUTE FOR PARIS.— An extensive and perfectly equipped school of biology is about to be erected in the Rue Dutot, opposite the Pasteur Institute, Paris. A lady some years ago devised the ground on which it is to be built, and the Baroness Hirsch has given £80,000 for the erection and partial endowment of the institution. A hospital is to be attached, in which suitable cases will be treated by Dr. R. Roux, and the entire establishment is expected to be ready by 1900.

TYPES OF HABIT NEURO-PSYCHOSES.[1]

BY EDWARD W. TAYLOR, M.D., BOSTON.

THE excuse for bringing to your notice a subject by no means new, is its extreme but too often unrecognized importance. In the same sense that habit forms so essential a part in the normal conduct of our daily lives must we look upon it in those conditions which, while bordering on health, often lead to disturbances of nervous equilibrium, which are distinctly pathological. It is the transitional period which is important, and demands our special attention, that critical period when a neural process once gone slightly astray is as likely to go on to the formation of a confirmed morbid habit as to return to the bounds of what we commonly term a normal state. Our attitude toward the victims of such perverted nervous habits is often tolerant, but rarely truly sympathetic and analytical as toward the less subtle forms of disease.

The object of this paper is to bring to your notice a number of conditions, illustrated by certain typical cases, which deserve our profound study and closest analysis. In attempting this we are repeating what has already been admirably done in Boston by Dr. Morton Prince[2] and Dr. Russell Sturgis,[3] whose papers, in great measure, have afforded the stimulus for this reiteration of the general principle involved. Prince's paper on "Association Neuroses" appeared in 1891. It is an altogether convincing presentation of the significance of association or habit — to use a less technical word — in the genesis of many affections which, when established, have the traits of independent diseases. Dr. Sturgis has approached the subject from a somewhat different point of view, but likewise offers much that is suggestive.

It is evident to the most superficial student that in the genesis of the common neuroses we are dealing with matters whose proper interpretation demands the exercise of our most critical judgment. Neurasthenia, for example, has far outgrown the interpretation put upon it by Beard. Fatigue is by no means always an adequate explanation; the sympathetic nervous system is demanding a recognition not yet accorded it; the subtle problems of food supply to the neuron, and nutrition, in the broadest sense, are claiming their share of attention. The mental factor is again becoming prominent. The time has, in fact, come, when our conceptions must be remodelled on comparatively new lines. It is, however, not at all our purpose to attempt the discussion of any of these disputed matters, but simply to limit ourselves to the interpretation of certain symptoms by means of an appeal to habit. In doing this we shall try to avoid the use of psychological terms, and modes of expression which are foreign to common experience.

There is no doubt a general willingness to admit that habit constitutes the very essence of a well-organized and effectual life. As children we are taught to make as many as possible of the commonplace acts of life habitual, and as we grow older we become more and more subservient to the power of continually repeated acts, until finally we become, in great measure, automatic. This is regarded as an unmitigated good so long as the continually forming habits subserve the general welfare of the individual, and that education is regarded as successful, which best brings this end to pass. As Prof. William James admirably puts it: "The great thing then, in all education, is to *make our nervous system our ally instead of our enemy.* It is to fund and capitalize our acquisitions, and live at ease upon the interest of the fund. *For this we must make automatic and habitual, as early as possible, as many useful actions as we can,* and guard against the growing into ways that are likely to be disadvantageous to us as we should guard against the plague."[4] It requires no elaborate argument to see and realize the essential correctness of this point of view. We all of us recognize, in a more or less thoughtful way, that we are bundles of habit, and that so far as these habits are good they are serviceable to us, and so far as they are bad they are more or less harmful. In persons physically well the mixture of good and bad habits is regarded as inevitable, and certainly not noteworthy. When, however, through any cause the nervous system is, or has become unstable, it must happen that the tendency to the formation of a morbid habit is increased. It is, no doubt, just at this point that so many persons begin a life of partial nervous invalidism, brought about by the persistence of certain pernicious associations. Leaving aside all other questions then, our purpose in what follows is simply to draw attention to, and attempt to analyze some of the morbid conditions in which habit plays a predominant rôle.

It is not difficult to make a rough but practical classification into three divisions:

(1) That in which without apparent cause a morbid association is aroused, and persists through repetition.

(2) That in which an association is formed as the result of an imperfect interpretation of physiological processes.

(3) That in which an association persists after its exciting cause has been removed.

In the first category may be placed a very large number of so-called neurasthenic conditions, whose source is often most difficult to determine. These are the patients who tell you they have been ailing for months or years. Their symptoms are often vague but annoyingly persistent; they know of no cause; they are not overworked. They are not neurasthenic in Beard's sense. A rest cure is just what they should not have. A persistent attempt to analyze the conditions brings us no further than to a settled conviction, that a fixed habit of experiencing certain morbid sensations has grown up, has fed upon itself, has finally so dominated the individual both mentally and physically that he is quite as likely to experience pain and discomfort in the various situations in which a normal person would experience only pleasure. These are difficult cases; their troubles are often temperamental, and an integral part of their character. They are, in great measure, the victims of perverted habit; their cure lies evidently not in drugs, but in a correction of their point of view, through a substitution of helpful for harmful trains of association. There is, no doubt, such a thing as a habit of health; and an equally definite habit of illness. Each day fixes the morbid habit, as in the healthy person each succeeding day brings a completer assurance of the health of the next. There are many of these border-line cases; they merge on the one hand into what would generally be called the

[1] Read before the Massachusetts Medical Society June 8, 1898, and recommended for publication by the Society.

[2] Prince: Association Neuroses, etc., Journal Mental and Nervous Diseases, 1891, xvi, p. 257.

[3] Sturgis: Use of Hypnotism to the First Degree, etc., Medical Record, February 17, 1894.

[4] James: Principles of Psychology, vol. i, p. 122.

normal, and on the other into what every one would acknowledge as pathological.

Not long since I saw a young girl who was afflicted with an attack resembling hay fever, whenever she looked for any length of time at a cat. When I saw her she had been playing with a kitten for perhaps half an hour, and as a result was undergoing a marked conjunctivitis. Her eye was suffused; her nasal mucous membrane was discharging in a typical fashion, her throat was affected, and altogether she presented a perfectly characteristic appearance of a hay-fever victim. She is not a sufferer from hay fever ordinarily, and nothing but a cat produces this effect. On questioning she was absolutely unable to give a reason for the peculiarity. She was fond of cats, and could not recall the circumstances of her first attack. This affection is evidently a neuro-psychosis of the habit type, owing its origin to some unknown association, and its persistence to habit. A friend of mine, who is a sufferer from hay fever, is annoyed in a similar way by contact with horses; his cure has been partially effected by a breaking up of the association, through wearing blue glasses. Prince narrates cases of a similar sort, in which the origin of the association is evident, and in which cure was effected by counter-suggestion.

These are merely examples of a very general principle which, undoubtedly, plays an important part in the persistence of many neuroses.

The second class is of much importance, not only theoretically, but also in view of the excellent results of treatment, when the condition is properly analyzed and interpreted. These are cases, who through ignorance of physiological laws form morbid habits, which result in distinct neuroses or psychoses. The commonest source of these disturbances is undoubtedly the sexual sphere. Both men and women are ignorant to an extraordinary degree of the normal function of the sexual organs. Everything is done by the charlatans in medicine to profit to their own gain by this ignorance, with the result that associations of a most pernicious sort are aroused, which grow in the usual ways to the discomfort and possible ruin of the individual. Cases of this sort are most familiar to us all, but their proper interpretation and successful treatment are far less common experiences.

The following is an example of this type of neuro-psychosis. A student of perfectly clean venereal history brings this report: For over four years he has been worried regarding a purely physiological matter, which in his ignorance he has thought abnormal. In consequence he has formed the habit of waking with regularity at three in the morning, which has added to his anxiety and annoyance. He went to college and through his entire course grew gradually worse, inasmuch as his head also began to trouble him. He studied psychology, and learned something of cerebral localization, which he naturally interpreted to fit his own case. He associated his supposed sexual difficulty with his head sensation, and in the light of his acquired knowledge put the two together as cause and effect. His reasoning was, if the arms and legs have cortical centres, the sexual apparatus must also; hence all my symptoms. For years he had been taking drugs, naturally without effect. He graduated from college and was anxious to take up his life work, but felt absolutely incompetent. His confidence failed, he was nervous, and on the verge of a break-down. With a feeling of desperation and with small hope of relief, he again sought medical advice. His cure consisted in the assurance that he had formed a morbid habit through ignorance of certain physiological laws, which later study had fostered. No hypnotism was necessary; and the new point of view offered brought about the desired result. The following night he slept until about five instead of waking at three, and a letter several months later stated the permanence of the cure.

This case is a perfectly typical one, and extremely easy of analysis. The onset of the affection was due to the false interpretation of a physiological event; it was fostered by a constantly more elaborated scheme of association; it led finally to a complex neurosis or more properly phychosis, which was rapidly undermining the nervous constitution of the patient. Treatment consisted in a substitution of a true for a false conception, and the habit of years' standing was immediately checked. Had the case been properly understood at the outset, those years of worry and unhappiness might easily have been avoided; had the condition persisted many more years the habit might as easily have become permanently fixed, to the lasting detriment of the nervous system.

There are many cases of a similar sort to this, some of them much less clear; but that this element of morbid association based on ignorance is an almost constant factor in certain neuro-psychoses, no one who has observed will be disposed to deny. In many of the nervous disorders of women this factor is at work. It is sometimes encouraged and sometimes allayed, by efforts directed to the local treatment of the pelvic organs. The absolutely important point to bear in mind is, that however conspicuous the subjective symptoms may be, and at times the objective signs as well, we should all the more direct our attention to the possibility of habit as a fundamental factor in the production of the final morbid condition. Could we intelligently forewarn our patients of the ills of certain habits into which they unwittingly fall, a step of the utmost value in prophylactic medicine would be taken, and the whole group of wretched hypochondriacal states be at least limited in their possibility of harm. A realization of this fact, we are convinced, is much needed by practitioners of medicine in every field. We have taken the sexual system as a characteristic example, but we do not wish therefore to be understood that the significance of this type of neurosis is confined to this sphere. On the contrary, it is very general in its manifestation, and is to be considered under manifold conditions. Further examples are the association of colds with damp feet and draughts in certain individuals, leading so often to a helpless slavery, or digestive disturbances following the eating of ordinarily harmless articles of food.

The third class which we have marked out is that in which a disturbed nervous state persists long after its exciting cause has been removed. In general, that large and constantly more important group of psychoses or neuroses following trauma is to be included in this class. In this connection we shall confine ourselves only to those results of trauma which are not connected with legal proceedings. We need offer no argument to prove that various nervous disorders do follow trauma; that is generally accepted. Our purpose is merely to trace one of the ways in which such disorders are perpetuated, following out the principle already outlined.

An illustrative case will best demonstrate our point. A man previously healthy falls on his shoulder, thereby sustaining an injury to the joint and its neighboring structures. His arm is temporarily disabled. His chief complaint is of pain in and about the joint, which is so severe that the arm is held practically immovable. He gives up doing any work which requires the use of the shoulder muscles, on the ground that the pain is too severe to permit it. The arm hangs helpless at the side. At the end of three months the patient presents himself at the hospital. Examination then shows, in other respects, a healthy man who holds his arm flaccidly at his side as if through an injury to the brachial plexus. There is, however, no marked muscular atrophy. On attempts to move the arm each effort is vigorously resisted by the patient with incessant complaint of pain. It is quite impossible for this reason, and on account of muscular spasm, to raise the arm to the horizontal, or in fact to move it freely in any direction. Voluntary movements of any magnitude on the part of the patient are not possible. From the history and physical appearances there was in this case no great hesitation in making a diagnosis of periarthritis, which subsequent events proved to be wrong. By way of instruction to the patient certain passive movements of the affected arm were made, which no less to his than to my surprise were brought about with more freedom and less pain than either had expected. In a few moments the patient could move the previously helpless arm almost as well as the sound one. His astonishment was extreme. He left the hospital temporarily cured and returned a few days later with the same disability, in spite of his efforts to help himself. He was again easily relieved, and has not since been seen.

Here, again, is a typical and exceedingly important type of disturbance. Its genesis is perfectly clear. A man falls and receives a definite injury, from which follows an actual disability, associated with pain. As the mechanical effects of the injury pass off, the pain persists in spite of the fact that its cause has been removed, and to the patient this idea of pain is as real as was the original pain. He has, in other words, formed a definite habit, which persists and tends to increase; the arm therefore remains helpless until the association is violently broken in upon, and even then tends to recur. It is a mere begging of the question to call such an affection hysterical, a term too much and too loosely used. Whether hysterical or not, the process remains to be explained. Its explanation lies in the line we have suggested, at least in part, in very many cases. The failure to recognize such conditions is a just reproach to the physician. By such failure many psycho-neuroses are engendered and propagated, until finally the association becomes so firmly engraved in a nervous system, that relief is difficult if not impossible.

A case, for example, comes to my mind in which a headache has persisted for fifteen or more years as the result of a trifling injury to the head, so firmly has the association of pain with a fancied fracture of the skull become fixed in the patient's mental life. The duty and the opportunity of the physician are clear in such cases.

Without further multiplying examples, we have seen, if the foregoing be accepted, that habit is an enormously important element in the perpetuation of certain morbid states. It all seems clear enough if we may only realize that a pathological habit is, in one sense, as physiological as a normal habit. To live always with a sense of well-being and health is accepted as natural; to be continually dragged down by pain and discomfort is looked upon as abnormal, but the two are, after all, simply habitual reactions of the nervous system to certain conditions, and the one is quite as natural as the other. The nervous system does its work well in either case; the fault lies with the unfortunate tendencies which determine the character of the neural associations. The nervous system is at first plastic, and easily moulded into right channels, but none the less easily, when certain strains are brought to bear upon it, into wrong ones. Some of those strains we have considered, and their power for harm when directed against an unstable nervous system. It is often possible for the physician to bring just that quality to his patient, which will permit him "to make of his nervous system his ally instead of his enemy."

Medical Progress.

REPORT ON THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

FURTHER EXPERIENCE IN REGARD TO THE EFFICIENCY OF BEHRING'S DIPHTHERIA ANTITOXIN.

DR. BÖTTICHER, of Giessen,[1] reports on 312 cases of diphtheria treated with Behring's antitoxin in the diphtheria hospital between October 27, 1894, and December 31, 1896. One hundred and twelve of these occurred between October 27, 1894, and July 31, 1895, and had been previously reported on by Dr. Bose, the director. In the second period, namely, between August 1, 1895 and December 31, 1896, even more stress than during the first period was laid on giving a large and early injection of the serum. Fifteen hundred units should be injected of antitoxin No. III, or preferably No. III D. This amount was given to children, the youngest of whom was only six months old. A large dose in the beginning is more important in country practice than in the hospital; for in the latter the patient can be more closely watched and a second injection given without delay if the first was insufficient. One large dose acts more promptly and more surely than several smaller doses. The injection should be in the thigh. The strength of the patient should of course be carefully looked to. In cases of tracheotomy the patient should remain under the effects of chloroform as short a time as possible; and if he is very weak, he should be only partially narcotized.

Of the cases of diphtheria, 112 in number, that occurred in the first period reported on, 9 died, or 8.03 per cent. Of the cases, 200 in number, treated in the second period, 16 died, or 8 per cent. Thirty-eight of these 200 patients were children under two years of age and 33 of them recovered; 10 were less than a year old, and only one of these died (a child of six months) and the death took place four hours after entrance to the hospital. Of 585 cases of tracheotomy occurring between 1878 and 1894 and not treated with Behring's serum, 341 died. In the above-mentioned 112 cases there were 52 cases of tracheotomy of which 8 died, or 15.18 per cent. In the 200 cases there

[1] Deutsche med. Woch., January 6, 13, 20, 1898.

were 72 cases of tracheotomy with a mortality of 12 deaths, or 16.66 per cent.

The results are noteworthy in the year 1894. Of 91 cases of tracheotomy in children where no serum was used, 49 died, or 53.8 per cent. In the latter part of the same year 16 cases of tracheotomy occurred in which antitoxin had been given; of these only two died, or 12.5 per cent. That is to say, there was a difference in the same year under the two treatments of 41 per cent.

It should be stated that the 312 cases of diphtheria treated with Behring's serum, in which the mortality was 8.01 per cent., were not picked cases; on the contrary, some were hopeless when they entered the hospital and died in a few hours.

That antitoxin has its limitations is shown by examining the percentage in the mortality of 297 of these 312 cases, in which the antitoxin was injected on the first, second, third, fourth, fifth, sixth, seven, and eighth, etc., days respectively. The death-rate increased strikingly from the fifth to the eighth day inclusive. In some of these latter cases other bacteria, especially the streptococcus, than the diphtheria bacillus were present before their entrance to the hospital.

It is worthy of remark, that, if the organs of breathing are injured, by chronic bronchitis, for example, an attack of diphtheria is more dangerous and the prognosis is very bad.

Antitoxin has a favorable effect on the general condition of the patient and on the local appearances.

The principal points to be deduced from the results in Giessen are as follows:

The percentage of mortality under treatment with Behring's serum has dropped about 36 per cent.; in cases of tracheotomy, from 58.2 per cent. to 16.1 per cent.; in children in their first and second years of life, from 75.6 per cent. to 24.3 per cent.

Tracheotomy was unnecessary in the children that entered the hospital in one-third of the cases, as compared with former times.

Laryngeal stenosis disappeared under serum treatment in 17 per cent. of the cases.

The administration of successive smaller doses instead of one larger dose, which even in the very first stage of the disease should be at least 1,000 (but better 1,500) units, makes the efficiency of all serum therapeutics questionable.

DIPHTHERIA MORTALITY IN GERMANY.

"The Imperial Statistical Office has recently published[2] the returns of the causes of death in the towns of Germany of more than 15,000 inhabitants, from the year 1885 to the year 1895. These returns show that from 1885 to 1895 there were 119,038 deaths from diphtheria or croup, the average number thus being 11,904 per annum. The maximum was reached in 1893 by 15,860 deaths and the minimum in 1888 by 9 934 deaths. In 1895, when diphtheria antitoxin was first used on a considerable scale, the deaths went down to 7,266. The diphtheria death-rate was 10.69 per 10,000 of the population in the preceding ten years, and only 5.4 in 1895; so that the mortality had fallen 49.48 per cent. Of 100 deaths 4.53 were caused by diphtheria from 1885 to 1894, and only 2.53 in 1895. The decrease of the death-rate from diphtheria was almost uniform in every district of the empire; the prevalence of the disease was, however, about the same as it had been for the last twenty years, and it is therefore unquestionable that the serum treatment has had the effect of producing a remarkable improvement."

[2] Lancet, February 19, 1898.

THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.

Sir R. Douglas Powell, M.D.[3] states that in the three Lumleian lectures delivered before the Royal College of Physicians of London his endeavor has been to illustrate the principles of treatment rather than to touch upon details; a recognition of a neuropathic state, the principle of rest, of exercise, of drug administration, of restrictions in diet, upon which the more precise management of individual cases is formulated. In cardiac therapeutics the principle of submission must be accepted in order to better help patients to recognize the necessity of a life restricted within the narrowed limit of those conditions under which alone life can be maintained.

Neurosis.

There are unquestionably a large number, perhaps an increasing number of people, who are morbidly conscious of their heart's action, and of the function of their cardio-vascular system generally or in particular parts. It is amongst the class of so-called "neurotics" that functional disorders of the heart so largely abound.

Cardio-vascular Hyperesthesia.

The first degree of this condition, consisting of undue appreciation of the heart's action and the blood circulating through the vessels, is extremely common in nervous introspective people. The heart's action may be quite normal, but it is liable from slight causes to become paroxysmally excited and accelerated. The pulse tension is variable.

The next degree is that in which the heart's action is really oppressed to a point varying from a mere vague anxiety to a positive discomfort and onward to the third degree, the acute suffering of angina. These persons may not be introspective, their attention is not concentrated upon their circulation, but is compelled thereto by actual discomfort or pain.

It is from among the first two classes of cases, not distinct but merging into one another, here referred to, that the cases of vaso-motor angina come. Shock, chill, emotion, dyspeptic distention of nerve endings, and other causes may so increase arterial resistance as to cause cardiac embarrassment and anginal pains. Paroxysmal attacks of palpitations or tumultuous action of the heart are not uncommon incidents in connection with especially the second degree of cardio-vascular neurosis described, the attacks being attributable to sudden vaso-motor relaxation or to vagus irritation from dyspeptic or gouty causes.

It is difficult to precisely formulate the harm done by amateur drug-taking for pain, sleeplessness, and spasmodic suffering. It may be clinically summarized by saying that the controlling centres of the nervous system suffer chiefly, emotional disturbances are more easily excited, reflex agitation is less controlled, the cardio-vascular and thermic centres are diminished in tone. The little bottles of tabloids so freely used have much to do with the increase of the neurotic disturbances of the heart and vessels, which is unquestionably

[3] British Medical Journal, March 26, April 2, 9, 1898.

a medical feature of the present generation. A neuralgia which in former days necessitated the called-for nerve rest is now promptly subdued by a dose and the patient is enabled thus to take a further step in nervous fatigue without direct suffering.

Neurotic persons as a class take too little food, are always hurried over the meals and in the details of life; they eat too fast, and have a tendency to exceed in nerve stimulants — tea, tobacco, alcohol, and certain drugs — or they find their excitement in social entertainments.

It is in all cases essential to make a thorough examination of the heart, and to come to an absolute diagnosis, for the treatment rests largely on moral grounds. If the patient can be truthfully assured that there is no organic lesion a most important step is taken in the treatment. The next point is to investigate his mode of life and correct it where necessary. The removal of the morning cup of strong tea, the proper relief of the bowels, the absence of hurry previous to and during meals, together with a few sensible directions with regard to the dietary will do much to render digestion more complete and quiet the nervous system. Some must be induced to give up the philanthropic and other duties with which their nervous energies impel them to fill all their time outside hard business hours.

Drugs are, of course, often required in the treatment of functional disturbances of the heart, purgatives or laxatives, and particularly an occasional mercurial to lower arterial tension and to remove irritating materials — sometimes nerve sedatives of the bromide order, often hematinics, especially arsenic or iron, as tonics to the nervous system and blood restorers. Strychnine is often very badly borne by patients of the neurotic class, except perhaps for short periods, and where a cardiac tonic is required, caffeine is more appropriate. In cases of venous plethora a course of salines is sometimes necessary and in gouty cases suitable remedies.

Many of the troubles and some of the catastrophes of cardiac disease are attributable to functional derangement. Numberless people die of functional disturbance of a diseased heart, few, or none, die of functional disturbance of a sound heart. Hence the importance of a definite diagnosis in every case as to which category it belongs.

Treatment of Angina Pectoris.

In a large proportion of cases angina pectoris is an entirely functional disorder, the main feature of which is sudden increase of blood pressure and a correspondingly sudden call upon cardiac effort; it may be on the systemic, it may be on the pulmonary, side of the circulation that the strain arises. The causes of this arterial spasm are almost all within our scope of remedial treatment, and the neurosis that favors its occurrence is subject to considerable modification and control. In all these cases while it is the heart that suffers the angina, the conditions that originate that suffering are outside the heart. There is no essential difference save in degree, and not always in degree, between cases of angina in which the heart is sound and those in which it is unsound, but there is every difference in the gravity of prognosis and the urgency of treatment.

The pain, which is to a certain extent the measure of the strain upon the heart, is to be attacked by remedies which relax arterial spasm. Amyl nitrite, nitroglycerin, and the nitrites generally, but especially nitro-glycerin (one minim of the one-per-cent. solution) may be given at intervals of five minutes for two, three, five or more doses, and at the same time that the antispasmodic is given an appropriate cardiac stimulant is required. In the more purely neurotic cases it is most desirable to avoid alcohol. There is no better stimulant than slowly sipped hot water. Dr. Brunton has pointed out that sipping is a physiological stimulant to the heart, and hot drinks tend to relax arterial spasm. A prescription for a carminative draught, including ammonia, chloric ether, and valerian or cardamom, is valuable to be taken in several sips. Warmth to the surface, and especially to the extremities, are the further requisites.

The second stage of these cardio-vascular attacks is one of reaction and excitement, to be followed by fatigue. Often by the time the medical observer arrives the cardiac pressure has already been relieved through the depressor nerve of the heart excited by intraventricular pressure bringing about relaxation of arterial spasm. With a few hours' rest in bed the patient may again be fit for the duties of life, although usually a sense of lassitude and fatigue remain for a few days. It is now that the cause of the attack must be sought out, the conditions of the heart carefully ascertained, and the daily life, diet, surroundings and functions of the patient must be investigated and corrected when in error.

If there be no heart disease present, the patient must be thoroughly reassured on that point; but if heart lesion be present, much more attention must be given to the after-treatment. The gravest cases are those in which there is enlargement of the heart without, or not accounted for by, valvular defect. The fatty heart, the syphilitic heart, the renal heart may be mentioned in this category, Aortic stenosis and aortic regurgitation come next. On all these cardiac conditions anginal attacks may supervene, having precisely the same mechanism as the attack unattended with cardiac disease. It is most important to bear this in mind, for the treatment is in precisely the same lines, only it must be more urgently pursued.

The initial treatment may be started with nitrite of amyl inhalation, and the patient should always have the drug at hand. But the attack is commonly attended with such acute heart failure that the clinical features of high pressure pulse and laboring heart may be immediately lost. The subcutaneous injection of pure ether, to which a minim of nitro-glycerin solution may be added, if not already otherwise taken, is the best treatment in severe cases if caught at the right moment. The sense of prostration is greater and more defined in these cases. Alcoholic stimulants, so much to be avoided in pure vaso-motor cases, are in these imperative. A full dose of brandy should be given in some hot drink. In those cases, and they are many, in which flatulent distention forms a marked feature of the attack, if it be not concerned in producing it, a draught of ether, ammonia, soda, cardamom and spirits of chloroform is of much service at the earliest stage.

The heart is left in an exhausted and fatigued condition after the attack, and there is a decided tendency to a series of several attacks. For this a mixture of strychnine or caffeine may be prescribed with digitalis, so that 15 or 20 minims of liquor strychninæ and 20 or 30 or 40 of tincture of digitalis are given in twenty-

four hours, and the strychnine may be given subcutaneously in, of course, equivalent doses, or the caffeine in the form of salicylate. It is probable that digitalis and strychnine influence the heart muscles before that of the vessels, but if the pulse becomes tightened, as it may be in exceptional cases, the digitalis must be lessened or its effect on the vessels moderated by the addition of half a minim or one minim doses of nitroglycerin to the prescription. Oxygen inhalation is a powerful restorative to the fatigued heart, and it may be given for five or ten minutes every hour, or two or three hours as may be required.

These cases often come with a history of a recent attack and it is necessary to consider what form of angina it has been, how to avert fresh seizures and how to repair, if it may be, the failing heart which renders each attack so dangerous. The presence or absence of heart disease must be rigorously ascertained:

(1) The soundness or otherwise of valve function.

(2) The presence or absence of enlargement, dilatation, or hypertrophy of the organ.

Tachycardia, Bradycardia, Exophthalmic Goitre, etc.

There has as yet been found no direct means of treating simple tachycardia successfully. The digitalis class of drugs are useless in this, as in almost all cardiac neuroses, except, and the exception is important, in the treatment of the heart fatigue which sooner or later ensues as consequence of the functional strain upon the organ. Tachycardia in its various grades is, however, often but a symptom, a prominent expression, of a neuropathic state which requires to be approached for treatment from many sides.

Many people, especially women, suffer from persistent hurry of the heart, coming quite within the range of the lower degree of tachycardia and there is nothing to distinguish simple tachycardia from that which is the constant symptom of exophthalmic goitre, the rhythm and quality of pulse being precisely the same.

In exophthalmic goitre, the physician has to deliver himself of the somewhat magisterial sentence "imprisonment for six months and under surveillance for from two to five years." The rest for the first six months should be absolute on bed, sofa, or on a couch in the open air, with the utmost avoidance of all excitement and mental fatigue. The patient can then be promoted to bath-chair exercise, quiet walking and driving, or more scientifically graduated exercises, and in the course of time recovers. The general well-being of the patient can be maintained, and the more distressing local and general symptoms relieved or removed by cold applications to the throat, sedatives of the bromide and valerian order, arsenical and sometimes iron tonics; digitalis and the like drugs may be given on the appearance of heart fatigue, indicated by the signs of dilatation and a pulse irregular in time and force. In the treatment of the tachycardia, apart from heart-strain, digitalis is of little value. The use of thymus extract is of some value in diminishing the rapidity of the pulse; the galvanic current has been found useful in some cases.

Bradycardia.

One form of bradycardia is that which sometimes follows upon the rapid heart of exophthalmic goitre and it is very commonly associated with well-marked myxedema. In chronic bradycardia, a condition that tends to remain permanent, and does not necessarily shorten life, an occasional twenty-four hours' rest in bed should be enjoined and for mental work the recumbent posture should be preferred. In cases of a more temporary kind the combination of strychnine with an alkali or iodide of potassium (the two drugs being kept in separate bottles, and only mixed at the time of taking) is a very useful one. Caffeine is also very useful, especially where the urine is scanty. A five minutes' whiff of oxygen three or four times in the twenty-four hours is a valuable cardiac stimulant. In cases of myxedema thyroid extract will be given, but it is not wise to push it to the production of any excitement of circulation.

(To be continued.)

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SECTION ON THE PRACTICE OF MEDICINE, DENVER, JUNE 7–10, 1898.

FIRST DAY.

ADDRESS OF THE CHAIRMAN, DR. SAMUEL A. FISK, OF DENVER.

THE climate of Colorado is unsurpassed; the best proof of its efficacy in pulmonary diseases is the large number of recoveries that are effected here.

The man practising medicine exclusively is hampered, on the one hand, by his professional brother, who demands that he may put his hand into his side in order to have a demonstration perceptible to the senses; on the other hand, he is hampered by the laboratory man, who demands that clinical results shall tally with those of mechanical appliances. Dr. Shattuck has already pointed out to us the fact that "Internal Medicine" should use these different results rather than be used by them. It may be that we are somewhat to blame for these conditions, and that many a fault has to be covered up by a theory rather than a fact. "The peculiar type of disease," is often used for a cloak for one's shortcomings; or where this fails, one is wont to take refuge behind the theory of "self-limitations," which led Dr. Warren, many years ago, when asked what was good for acute rheumatism, to reply, "Six weeks." Fortunately, text-books do not contain the whole of medicine, and disease does not so easily direct her course according to the tactics of medicine. If our joints are swollen and painful with acute articular rheumatism, we know nowadays that we do not have to wait the whole of six weeks, and that the old idea of "twenty-one days," as applied to typhoid fever, does not hold good, as we have peculiar types of disease known as typhus levisimus, a febrile typhoid and an abortive typhoid. The fact that we have these peculiar types, whether as the result of practice or in spite of it, leads us to hope that a disease that has once been aborted can be aborted a second time, and that in time the peculiar type may become the prevailing type. In the direction of abortive medicine as well as of preventive medicine our Section has considerable scope for the future.

This is the centennial anniversary of Jenner's famous discovery. It is needless to do more than

make mention of this fact to recall the blessings that have accrued to the world from this discovery; one of the greatest blights of mankind, that has frequently decimated a population, has been wiped out; and the average limit of man's days has increased in consequence. It may not be out of place to note the fact that these results are derived from clinical observation and not from the laboratory toil. Without wishing to depreciate the results of experimentation and of exactness, one cannot but chafe under absurd demands and unjust restrictions. One is reminded of Hamlet's little frenzy: "Why, look you now, how unworthy a thing you make of me. You would play upon me; you would seem to know my stops; S' blood, do you think that I am easier to be played upon than a fife?"

DISCUSSION ON PERFORATION PERITONITIS.

DR. J. C. WILSON, of Philadelphia: The visceral diseases not yielding to treatment, and sooner or later, to be transferred to the surgeon, are the following: Empyema; pericardial effusions; troublesome cases of cholelithiasis with persistent symptoms and empyema of the gall-bladder; cysts of the pancreas and echinococcus cysts. The kidney may be extirpated when it is the seat of malignant or other growths; nephrorrhaphy may be performed for the relief of symptoms due to displacements; hydronephrosis and nephrolithiasis may require operation; and certain cases of stubborn nephralgia may require incision into the capsule. Surgery of the gastro-intestinal tract has been extended to establishment of gastric fistulæ in stenosis of the esophagus, pylorectomy, partial or complete extirpation of the stomach, gastro-enterostomy, removal of carcinomatous growths of the lower bowels, appendicitis cases, ulcerative cases of the stomach and intestines, especially peptic ulcer and the perforative ulcer of enteric fever.

The remarks of the speaker would have no bearing on surgical lesions followed by extravasation of the intestinal contents and infection of the peritoneum, as it is well known that in such cases immediate operation is the only hopeful procedure.

Aside from traumatic and gynecological cases the list of diseases in which acute general peritonitis may arise is most extensive:

(1) In the alimentary canal: (*a*) peptic ulcer, gastric ulcer and duodenal ulcer; (*b*) enteric fever; (*c*) appendicitis.

(2) Other hollow viscera, the contents of which may be infected: (*a*) the gall-bladder; (*b*) the contents of the kidney; (*c*) the urinary bladder.

(3) Rupture of abscesses: (*a*) purulent pleurisy; (*b*) subphrenic abscess; (*c*) hepatic abscess; (*d*) abscess of the pancreas; (*e*) appendicular abscess; and (*f*) other pus collections in regions in relation to the peritoneum.

(4) Necrotic processes involving abdominal viscera: (*a*) internal strangulation; (*b*) intussusception; (*c*) volvulus; (*d*) embolism and thrombosis of the mesenteric vessels; (*e*) gangrene of the pancreas or spleen; (*f*) displaced kidney or spleen with twisted pedicle; (*g*) acute hemorrhagic pancreatitis; (*h*) fat necrosis.

In some of these conditions, when the patient has been under observation prior to the accident causing the peritonitis, the disease can be readily determined; but in other cases the patient, while out of health, is able to be about, and it is difficult to make an exact diagnosis. The distinction between the cases in which an immediate diagnosis can be made and those in which it cannot is a matter of theory rather than of practice. The form requiring immediate attention is acute fulminative peritonitis. Here is a question of diagnosis.

In the early stages when operative interference is advisible and not without hope, the symptomatology may be grouped as follows: (1) Pain, general, becoming local; or local, becoming general, according to cause. (2) Tenderness, general, becoming local; or local, becoming general. (3) Rigidity of the abdominal muscles. (4) Vomiting, green, and exceptionally absent. (6) Shock, varying in depth. (7) Diminished peristalsis.

The symptoms in fully developed peritonitis, in which the wisdom of interference is questionable, are: (1) Pain, lessened or absent. (2) Tenderness, general. (3) Distention, excessive, replacing rigidity. (4) Vomiting, excessive, dark and fecal. (5) Obstipation, peristaltic movements not heard. (6) Pulse, rapid and feeble. (7) Temperature, high or low. (8) Lividity of abdominal skin; cold extremities. (9) Peritoneal facies. (10) Mind clear.

In hopeless cases these symptoms are increased with collapse; the patient is moribund.[1]

The condition of the abdomen is of the utmost importance. The early rigidity of the abdomen is a symptom whose importance is not sufficiently recognized by the practitioner.

In a series of six cases of perforating ulcer of the stomach, reported by different observers, where an operation was performed within a few hours after the development of symptoms indicating perforation, five recovered.

In "Surgical Complications and Sequelæ of Typhoid Fever" by Keen, there is a table of 83 cases of operation for perforation in enteric fever; this gives 19.36 per cent. of cures and 80.64 per cent. of deaths. When this is compared with Murchison's unchallenged figures of 90 to 95 deaths without operation, we may take courage for the future.

In cases operated upon within twelve hours, the percentage of recoveries was 26.7 per cent.; between twelve and twenty-four hours, 30 per cent. After twenty-four hours the mortality was total, except one after twenty-six hours and two that recovered in between two and three days.

In conclusion, we may formulate the following propositions as regards operation in acute general peritonitis due to perforation and analogous conditions:

(*a*) A definite causal or local diagnosis of the lesions can be made in comparatively few instances.

(*b*) The diagnosis of acute general fulminative peritonitis is of itself sufficient to justify interference in proper cases.

(*c*) The earlier the operation the greater the chances of success. After twenty-four hours, especially if great distention of the abdomen has shown itself, operation is not likely to be followed by recovery.

(*d*) A small proportion of the cases are manifestly hopeless from the onset.

(*e*) When the patient is so obviously past hope the fear of death upon the table should not deter the surgeon from operating.

[1] Richardson and Cobb: Park's Surgery by American Authors, vol. xi, p. 388.

DR. W. W. KEEN, of Philadelphia, said that the catalogue of diseases causing perforative peritonitis was great enough to challenge our attention. He did not entirely agree with the speaker in regard to the symptoms, but thought that the pulse and temperature were of unequal value. In general the temperature was the best index of a septic condition, but it could not always be relied upon. Dr. Wilson's statistics were of great importance. If the patient is seen for the first twenty-four hours after perforation, he may be assigned to the grave. In cases of perforation in typhoid fever 95 per cent. die. Drs. Weir and Tinckler reported that in cases operated upon within sixteen hours the mortality was 30 per cent. In cases of peritonitis where perforation had taken place, he thought that immediate operation offered the only hope of recovery. He did not think it made any difference in regard to the mortality, whether the incision was two or six inches long. General and complete cleanliness of the abdomen was all-important. In general agglutinative peritonitis he believed in making an incision on both sides and in thoroughly cleansing the abdomen. He was glad that the section had taken up the discussion of this subject, as it was one that interested every physician and surgeon, and one in which all should unite in the work for life and humanity.

DR. J. H. MUSSER, of Philadelphia, confined his remarks to his own experience. He looked upon pain, usually localized, as a symptom very significant and greatly to be dreaded. Post-mortem examination usually shows that perforation has been preceded by localized inflammation, and there is considerable lymph covering the intestines in that region, and matting them together. The phenomenon preceding perforation is the pain, the severity of which depends upon the intelligence of the patient at the time. In typhoid fever the patients are not susceptible to pain, or else their state of mind is such that their attention is not directed to it. Pain, localized tenderness, antecedent history and slight rigidity followed by symptoms of shock should suggest the possibility of an accident. Excluding typhoid fever, the symptoms of shock are those that must be depended upon in typhoid fever in making a diagnosis. He agreed with the surgeons who advocated making an exploratory incision in order to verify a diagnosis. He cited the case of a young girl who had all the symptoms of typhoid fever, though the reaction did not verify the disease. At the end of the first week she complained of pain, but there was no rigidity or tympany. The following day the pain was more severe, being referred to the back. An examination was made to exclude pelvic disease, when a large mass was found in the pelvis. The patient died, and a pelvic tumor as well as evidences of typhoid fever were found. This showed the importance of early diagnosis; an exploratory incision would have removed any doubt as regards the diagnosis.

DR. C. G. STOCTON, of Buffalo, N. Y., advised ascertaining whether the viscus was a hollow one containing air, as the stomach or intestines, or whether it was the gall-bladder, urinary-bladder, etc. The symptoms differ materially in different cases. There was little difficulty in diagnosing a perforation following a peptic ulcer. The case of a patient was cited who was picked up on the street in a state of collapse and intense pain. The pain being in the region of the bladder, it was thought that she had ruptured her bladder. No operation was performed; and when she died at the end of a week, perforation of the stomach was found to exist, from which the gastric contents had been discharged into the abdomen. The speaker thought that the suddenness of the onset of the symptoms was the best guide in the diagnosis of perforation, though it might be preceded by a slow inflammatory process producing tympany before the symptoms of shock appeared. In one case of peritonitis in which pain was referred to the region of the kidney, the patient succumbed, and post-mortem examination showed a number of renal calculi, one of which was just passing through the ureter. It often happens that there is an absence of the symptoms that one expects.

DR. L. F. BISHOP, of New York, believed that opium obscured the symptoms and gave false confidence. He had found that ice-bags relieved the pain in these cases.

THE DIFFERENTIAL DIAGNOSIS BETWEEN DENGUE AND TYPHOID FEVER, WITH SOME ACCOUNT OF THE EPIDEMIC OF 1897 IN TEXAS.

DR. H. A. WEST, of Galveston, read a paper with this title.

The following hypotheses have been assumed in relation to the recent epidemic:

(1) The disease was dengue only. There was no yellow fever in Galveston or Houston, Texas, in the year 1897.

(2) There were anomalous cases of dengue, presenting the symptoms of yellow fever, but not proven to be that disease by its indisposition to spread from numerous foci and the low mortality-rate. During the progress of an intense epidemic of dengue throughout the State, yellow fever made its appearance at Galveston, Houston, and possibly at other places; but on account of its mild form and resemblance to the prevalent disease, it was quite generally unrecognized.

(4) An imputed hypothesis that the epidemic of 1897 in Texas was yellow fever only.

(5) A few cases terminated fatally, and others attended by marked jaundice and albuminuria were denominated acute infectious jaundice (Weil's disease).

It appears that the symptoms that have hitherto been relied upon to differentiate between yellow fever and dengue are the occurrence in the former of albuminuria, the characteristic facies (inclusive of jaundice), the divergent pulse and temperature, excessive irritability of the stomach, and increased disposition to hemorrhages. The absence of such symptoms in the main, the presence of an eruption in the large proportion of cases, and a want of mortality are characteristic of dengue. Admitting that there is a greater similarity in the symptomatology of the two diseases than has hitherto been acknowledged, the question arises how they can be differentiated. In my opinion simply by the symptom complex of an acute nephritis in yellow fever and its absence in dengue. In the latter simply parenchymatous changes may occur in the kidney and be manifested by an evanescent and mild albuminuria; while in the former a series of many cases will afford incontestable evidence of the occurrence of severe nephritis, namely, scanty urine of high color and specific gravity, intense and persistent albuminuria, hematuria casts, decided tendency to suppression and the accompanying uremia.

SECOND DAY.

DIABETES MELLITUS AT THE MASSACHUSETTS GENERAL HOSPITAL, FROM 1824 TO 1898. A STUDY OF THE MEDICAL RECORDS.

The above paper was by DRS. REGINALD H. FITZ and ELLIOT F. JOSLIN, of Boston, and was read by Dr. Joslin.

The total number of cases treated from 1824 to 1898 was 172. Within the last thirteen years there were as many cases as during the previous sixty-one years; 127, or 74 per cent., were males; 45, or 26 per cent., were females. The average age of 40 female patients was 39.1 years, being higher than in 121 males, of whom the average age was 31.4 years.

Tables were presented showing the proportion of diabetic cases to other medical cases in the hospital, as well as the classification of these cases as regards age, nationality, occupation, heredity and trauma. There was only one negro in the whole number of cases.

The impression prevailed in the early days in the hospital, as well as in the literature of the time, that there was more liquid passed than was injected. Sugar was determined by taste until 1861; sometimes by the patient and sometimes by the doctor.

The statement "A curious smell in the breath, which he has had since entrance," was made in 1835; and after this frequent allusions were made to the odor of the breath and urine before the test for acetone was discovered.

The average duration of the disease was one and a half years; in one case it lasted twelve years, and in another two weeks. The tables also showed that the duration in nearly seven-eighths of all fatal cases was less than two years.

Out of the 172 patients 47, or 27 per cent., died. The mortality among males was 30.7 per cent.; of 45 female patients 8 died, a mortality of 17.7 per cent. The lowest mortality was in the period from 1824 to 1840; but the total mortality from 1824 to 1885 was the same as from 1885 to 1898. Of the 47 fatal cases, 18 died comatose. Of the diseases complicating the fatal cases, only six had pulmonary tuberculosis, six chronic nephritis, and one disease of the pancreas.

"Animal food with bread in small quantities" formed the diet in the first period. There has been no essential change since. Between 1840 and 1855 experiments were made with yeast, and from 1870 to 1885 with glycerin; but results were poor. Eight of the comatose cases were treated with intravenous injections of salt solution or bicarbonate of soda. All died, though in some there was temporary improvement.

DR. WEST, of Galveston, thought that the small proportion of cases occurring in the negro might be due to the fact that there were few negroes in the locality, though he had never seen a case in that race. Diabetes and gout were frequently associated. Diabetes pursues a rapid course in the young. Albuminuria was said to be found in about 60 per cent. of the cases, and yet an autopsy failed to show kidney lesion; this seemed to him remarkable.

DR. TYSON, of Philadelphia, said at a clinical lecture he had made the statement that he had never seen a negro with this disease. A negro physician was present who had a large practice, and in a few days three negroes came to him with unmistakable diabetes. It might be more common in this race than was supposed.

DR. BOND, of Indiana, thought this trouble was more common in the Hebrew than in the Christian, because of the peculiar mode of life of the former. They congregate, and have evening meals, parties, etc.

(To be continued.)

Recent Literature.

Lectures on Physiology. By A. D. WALLER. On Animal Electricity. First Series. 144 pp., 67 figures. Longmans, Green & Co.

This book, which is an amplification of the Fullerian Lectures in Physiology for 1897, presents very fully the facts of the electrical phenomena manifested by nerves. The experiments in which chloroform and ether are compared as to their effects upon the negative variations produced by stimulation of an isolated frog's sciatic are of particular interest, as are also those which seem to show for tetanization a similar effect to that produced by bathing with an atmosphere of carbon dioxide.

Text-Book of Medical Jurisprudence and Toxicology. By JOHN L. REESE, M.D. Fifth edition. Revised by HENRY LEFFMANN, A.M., M.D., Ph.D. Philadelphia: P. Blakiston, Son & Co. 1898.

The present edition does not differ very widely in essentials from those that have gone before, and for that reason presents its material in a compact form, well made and convenient.

Certain changes in the arrangement of the subject-matter have been made, which on the whole are in the line of improvement.

Atlas of Legal Medicine. By DR. E. VON HOFMANN. Authorized translation from the German. Edited by FREDERICK PETERSON, M.D., assisted by ALOYSIUS C. J. KELLY, M.D. Fifty-six plates in colors and 193 in black. Philadelphia: W. B. Saunders. 1898.

In the preface the author says: "In the preparation of the atlas my purpose has been that it should serve for further illustration of a good text-book, that it should be, to a certain extent, a supplement to the latter. I have therefore limited the descriptive text, and have not considered a series of illustrations such as are found in every good text-book of legal medicine and in other widely distributed books, as, for instance, blood-spectra, spermatozoa, etc. This, on the one hand, diminishes the cost of the book, and, on the other, permits of the introduction of other important illustrations."

The work as a whole, both that of the author and publisher, is a distinct addition to the literature of the subjects treated. Not only are the subjects of the illustrations well chosen, but the plates and figures are unusually and uniformly good. It is rare indeed that so large a series of illustrations are found which demonstrate so well and so accurately the conditions which they are supposed to represent.

Burdett's Hospitals and Charities, 1898; Being the Year Book of Philanthropy and the Hospital Annual, etc. By SIR HENRY BURDETT, K.C.B. London: The Scientific Press (limited).

This year book has taken a recognized place in its department, is now well known and continues to contain a large amount of valuable and useful information.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 21, 1898.

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MEDICAL JOURNALISM.

WITHIN the past few years the increase in number of medical weekly and monthly publications has been so enormous that all contributors, however unworthy, are easily accommodated, if not in one direction then in another. Everybody who styles himself "M.D." now finds abundant opportunity to air his views, or solicit advice in a perplexing case, and the result is a species of medical journalism as variegated and heterogeneous as the "Purple Cow" or "Lavender Pig" exemplars of general literature (?) that are constantly appearing upon the news-stands.

A critical examination of the contents of certain specimens of the class of medical journals to which we refer, reveals on the part of their contributors an ignorance of the most commonplace facts of medical science that is simply deplorable and a sublime disregard for rules of syntax that is none the less deplorable, although infinitely more amusing. The conclusion to which the examiner inevitably comes is that the medical press of this country is in sad need of a censorship.

Dialect stories cannot compare, for bizarre spelling and phraseology, with the communications of certain medical gentlemen in distress over patients with "a touch of the consumption" or a complex of symptoms designated (shades of Charcot!) "a spell of the hysterics." From the intricacies of construction which characterize these writings, the Queen's English undergoes every variety of contortion until, finally, the very acme of elegant simplicity of diction is encountered in journals of the "correspondence" type. In these we find "Doc" So-and-So communicating his perplexities to "Doc" Somebody-Else or bestowing upon him an infallible remedy for piles in exchange for a prompt and safe emmenagogue. All these little amenities are characterized by a style of diction that rivals the masterpieces of the "Ready Letter-writer" and demonstrate, if they do no more, that the lacteals of human kindness are never withered in the medical breast.

This is the class of writers about whom Dr. Holmes[1] says: "They go for weakness whenever they see it, with stimulants and strengtheners, and they go for overaction, heat and high pulse and the rest with cooling and reducing remedies." But their contributions can be of no positive value to scientific medical literature for the reason that they aid in no way toward a better understanding of disease processes. The movement which has set such a class of writings on foot is retrograde in that it tends to foster empirical methods of prosecuting a calling which now, more than at any other period of its existence, demands that its true representatives shall be scientists in the fullest sense of the word, and not mere dispensers of powder and pellet.

The dignified attitude which medicine is beginning to assume among the sciences can never be maintained unless the writings which record its progress are of a quality to compare with those which mark the advances in the sister sciences.

We have gained so much of exact knowledge through pathological and experimental research that future contributions to current medical literature should be stripped almost entirely naked of theory and speculation, those barriers to scientific progress. To achieve this the medical writer must needs be an investigator, at least to the extent of finding out how far such views as he is about to put forth are substantiated by the facts of pathology. The neglect of such a preliminary step is to-day a tacit avowal of both laziness and ignorance, since our library facilities for such work are abundantly adequate. When the writer has before him all necessary material, he should aim, above all, at clearness and accuracy. His English should be terse, not oratorical and certainly not colloquial; it should be free from hybrid technical terms, especially those with Greek roots and Latin endings. Finally, his bibliography should be such as will bear verification, for there is nothing more maddening to the man who is searching the literature than to find reference after reference which resists all attempts at identification. The only accurate way to refer is to refer in full, even to the page number of every quotation.

In conclusion, we wish to allude to two faults which are rife enough among contributors to medical journals to be considered annoying, to say the least. The first is the eternal dragging in of the *ego;* and the second, an inordinate fondness for the sensational. With respect to the first, we can only say that in our opinion no man's writings will ever lose anything of dignity or worth by being, as far as possible, impersonal. As a sample of the second fault we need only call the reader's attention to the earlier literature of the x-ray. If he will but compare that with what represents the thoughts of men who have probed its usefulness to the bottom, the moral lesson will be obvious.

[1] The Poet at the Breakfast-Table, Riverside Press Edition, p. 121.

YELLOW FEVER IN CUBA.

As the last issue of the JOURNAL was going to press, we stated that there was a rumor to the effect that yellow fever had made its appearance about Santiago. The rumor has since been confirmed, and there is now no doubt that the fever is prevailing to a certain extent in our army. Fortunately the disease is of a very mild type, so that the deaths are exceedingly few.

It is said on the authority of an army officer, who has made a special study of yellow fever, that the disease, as it occurs in Cuba, is usually a very mild variety, and that with proper care it is not difficult of treatment. It would seem with our present knowledge of diseases of this type, that the hospital corps, now with the army in Cuba, should have no great difficulty in checking the spread of the fever, and also doing much for the relief of those who may already have it. It is only when the demoralization of an epidemic is established that a great loss of life is to be feared, and such demoralization, we feel sure, will not be forthcoming.

In the light of the outcome, General Miles's order to burn the outlying village of Siboney has been more than justified. It is possible that had this been done sooner, a source of infection might have been removed, which probably has been the starting-point of many, at least, of the cases. There is every reason to suppose that the miserable refugees from the city, who were so hospitably received by the American troops, brought with them the seeds of contagion, which naturally spread in a soil so admirably adapted to their growth. It will also be remembered that certain members of the commissary department were the first to contract the disease, which would bear out the correctness of this supposition.

The idea of treating patients affected with the disease on the spot is unquestionably a good one, and much wiser than an attempt to remove those already ill to the mainland. By the establishment of hospitals on the high ground about Santiago, no doubt better results may be attained than by removal to a cooler climate, and apparently this is to be the policy of the medical department.

Recent advices inform us that about three hundred cases among the soldiers are reported, most of them, however, not of a dangerous sort. Many of the Red Cross nurses are also said to be ill with fever, contracted in their efforts to relieve the sick. There is, however, no sign of a panic, a contingency which will undoubtedly be avoided, even should matters prove much worse than they now appear to be. Evidently the government means to do its utmost to combat the disease in its incipiency. It is said that Surgeon Arthur, of New York, has been given *carte blanche* to get together as soon as possible a large number of contract doctors and nurses familiar with fever cases, who will be sent at once to Santiago.

The real danger of the situation unquestionably lies in the native population, who are many of them absolutely unfit, through suffering and privation, to bear any additional physical strain. The problem of caring for these unfortunate victims of circumstance, in addition to the necessary work among our own troops, may well tax the resources of our hospital corps. We feel confident, however, that it will be quite equal to the demands made upon it, and will have no great difficulty in coping with the disease in any form in which it may appear.

MEDICAL NOTES.

ABRAM JACOBI, M.D., LL.D. — The degree of Doctor of Laws was conferred on Dr. Abram Jacobi, of New York City, on June 30th, by the University of Michigan.

AWARD OF THE JENNER MEDAL. — The first award of the Jenner medal of the Epidemiological Society of London has been made to Mr. William Henry Power, F.R.S., Senior Assistant Medical Officer of the Local Government Board.

PROPRIETARY PRESCRIPTIONS. — In 217,000 prescriptions written in Chicago, Philadelphia, New York, Boston, Washington, Baltimore, Denver, San Francisco, New Orleans and St. Louis, 11.25 per cent. were proprietary articles.

CHARGES AGAINST A NEW YORK MEDICAL SCHOOL SET ASIDE. — The charges against the New York Post-Graduate Medical School and Hospital, relative to a misapplication of funds, have been investigated by the State Board of Charities, and set aside, as unfounded.

YELLOW FEVER PROMPTLY SUPPRESSED. — The Marine-Hospital Service announced July 9, 1898, that as far as is known there is not a single case of yellow fever in the United States. The total number of cases in the recent invasion at McHenry, Miss., was 24. The last patient was discharged July 8th. There are no other cases under treatment and no suspicious ones under observation. Since this announcement was made, we hear that cases of yellow fever have occurred among the troops in camp at Tampa.

A SPECIAL COMMITTEE APPOINTED TO COMMEMORATE JOSEPH O'DWYER. — At the meeting of the Section on Diseases of Children, of the American Medical Association, held at Denver, Col., June 7–10, 1898, it was moved and carried unanimously that a Memorial Committee be appointed to commemorate the late Joseph O'Dwyer, with suitable powers, etc., to collect such moneys and to act with other bodies for the same purpose. The committee is composed of the following: Dr. Louis Fischer, New York, Chairman; Dr. J. P. Crozier Griffith, Philadelphia; and Dr. F. E. Waxham, Denver, Col.

USE OF INTOXICATING BEVERAGES RESTRICTED BY GENERAL MILES. — According to the *Medical News* Major-General Miles has promulgated a general

order to the army announcing that the history of other armies has demonstrated that in a hot climate, abstinence from the use of intoxicating drink is essential to continued health and efficiency; and enjoining the division commanders to restrict or entirely prohibit the sale of such beverages if the welfare of the troops or the interest of the service requires such action. For a general order emanating from the headquarters of the army upon this subject, a more positive statement would not have been out of place. No physiologic fact has been more thoroughly demonstrated than that the use of alcohol in climates representing the extremes of heat and cold, namely, in arctic expeditions and in tropical campaigns, is not only not beneficial but positively harmful.

INFANTILE SCURVY. — Dr. Augustus Caillé, a member of the Scurvy Investigation Committee, of this city, writes that the report of a collective investigation on infantile scurvy in North America, sent us by the recorder of the Pediatric Society and published on July 2d, should, according to a vote of the society, have contained the minority as well as the majority report. The former was as follows: "(1) From a study of three hundred and seventy-nine cases of scurvy collected, and taking into consideration certain well-known facts regarding the disease, scurvy appears to be a chronic ptomain poisoning due to the absorption of toxins. (2) It follows the prolonged use of improper food, and abnormal intestinal fermentation is a predisposing factor. (3) Sterilizing, Pasteurizing, or cooking of milk food is not *per se* responsible for the scurvy condition. (4) A change of food and the administration of fruit juice and treatment of any underlying cause is the rational therapeutic procedure in scurvy." — *Medical Record.*

TYPHOID FEVER IN THE ARMY. — Typhoid fever has, up to the present time, been as great a menace to the army as the much dreaded yellow fever, and yet, with strict precautions, it has in no way become epidemic. The *Medical News*, quoting Colonel A. C. Girard, Chief Surgeon of the Second Army Corps, says in regard to typhoid fever at Camp Alger: "There have been only 41 cases of typhoid fever since the camp was established on May 29th. Ten of these cases originated in the squadron of the New York cavalry. Four men arrived in camp with the disease, and six caught it while at farmhouses doing provost duty. Members of the Sixth Massachusetts now at the front contracted typhoid fever from well-water at Falls Church depot while doing provost duty. Other cases are isolated, and average about one to every regiment. The water in the wells of the camp grounds is absolutely pure, and has been tested by an analytical chemist from the Surgeon-General's Office in Washington. There are no cases of typhoid in camp now, as shown by the regimental surgeon's reports. As soon as a case is discovered the sufferer is sent to Fort Myer, and every precaution is taken to prevent the disease from spreading."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, July 20, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 24, scarlet fever 15, measles 44, typhoid fever 5.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION. — Dr. Carroll E. Edson, formerly of Boston, now of Denver, has been elected Secretary of the Section of Practice of Medicine. Dr. F. H. Williams, of Boston, has been elected Secretary of the Section on Ophthalmology.

NEW YORK.

HEALTH OF THE CITY. — On July 12th Dr. Roger S. Tracy, Registrar of Records, made a special report to the Board of Health, which shows the health of the city during the six months ending July 1st to have been exceptionally good. A comparison of the deaths in the boroughs of Manhattan and the Bronx (the former limits of New York), with the deaths for the corresponding period of 1897 gives the following results: Total deaths in 1898 were 19,113, as against 19,509 in 1897, showing an annual death-rate of 18.66 in an estimated population of 2,048,880, as against 19.60 in 1897 in an estimated population of 1,990,562. This a lower mortality than in the corresponding months of any year since 1886. The number of deaths from diphtheria and croup is the lowest in twenty-six years, a fact which is considered largely attributable to the use of antitoxin and the medical inspection of schools.

In the first six months of 1894 the six contagious diseases, phthisis, diphtheria, croup, measles, scarlatina and typhoid fever, carried off 2,864; but in spite of a continuous increase in population the mortality from these diseases has declined in each year until in the corresponding period of 1898 it has been only 1,385, or considerably less than one-half what it was four years ago. During the first half of 1889, less than ten years ago, the deaths from the same diseases numbered no less than 3,181. Not less gratifying is the marked decrease in the death-rate among children under five years of age. These figures would seem to indicate improved sanitation as well as advances in treatment.

With the advent of hot weather, however, there has been a marked increase in the mortality of the city. While during the week ending June 25th the death-rate of New York (including all the five boroughs) was only 16.86, in the week ending July 2d, when the extreme heat commenced, the rate increased to 19.60, and in the week ending July 9th, to 26.68. As one would naturally expect under the circumstances, the greatest increase in the mortality has been in children under five years of age. During this last week the deaths in this class amounted to 974, against 598 in the week ending July 2d, and 428 in the week ending June 25th. The total deaths from diarrheal diseases

were 399, with 382 in children under five, against 170, with 164 in children under five, in the week ending July 2d, and 74, with 69 in children under five, in the week ending June 25th. Contributing to the increased mortality were the number of deaths from sunstroke and drowning, as shown in the following table for the weeks ending June 25th, July 2d and July 9th:

	June 25th.	July 2d.	July 9th.
Violent deaths	63	68	136
Inquest cases	241	294	320
Sunstroke	1	8	76
Drowning	13	12	21

On comparing the mortality of the different boroughs in the week ending July 9th we find that the largest death-rate was in the Bronx, with its many large institutions, 31.59, the next largest in Queens, 30.56, the next largest in Brooklyn, 27.90, the next largest in Manhattan, 25.41, and the smallest in Richmond (Staten Island), 24.11.

LIQUEFIED AIR FOR YELLOW FEVER. — As the beneficial effect of cold in yellow fever is generally recognized, Charles E. Trifler, of New York, whose new method of manufacturing liquefied air at a small cost lately attracted so much attention in the scientific world, has proposed to the government to go personally to Cuba and set up a plant which he states could be done within ten days and at a cost not exceeding $5,000. This would include the equipment of a room large enough to accommodate, at least, one hundred patients, and his plan would be to have the liquid air evaporated outside of the room and the cold air thus obtained forced into it through pipes running along the ceiling. In this manner, he claims, a uniform temperature of any desired coldness could readily be maintained.

A VICTIM OF THE OPIUM HABIT. — There was lately admitted to Bellevue Hospital a young man, twenty-two years of age, who is the worst victim of the opium habit met with in that institution for a long time. He is a drug-clerk, formerly of Brooklyn, and recently residing at Hickville, L. I. The patient was brought to Bellevue by Dr. C. T. Taliaferro, of the latter place, who stated that during the twenty-four hours preceding he had taken 60 grains of morphia, in addition to 20 grains of cocaine, and that for the past year he had taken from 30 to 45 grains of morphia every day, for the most part by hypodermic injection.

TRICHINOSIS. — No less than six members of one family, Germans, living at Sherburne, near Binghampton, N. Y., have recently died of trichinosis, the result of eating raw pork. The disease was at first mistaken for typhoid fever, but a microscopic examination of the muscles of one of the victims at once disclosed its true nature.

DEATH OF J. H. WILSON, M.D.—Dr. John Hewitt Wilson, one of the oldest physicians in New York, died at his residence in that city on July 17th, of apoplexy. He was born in Ireland over eighty years ago, and was graduated from Glasgow University in 1844. He came to New York many years ago, and notwithstanding his age continued in active practice up to the day of his death. It was a frequent boast of Dr. Wilson that he would die in harness.

SICK AND WOUNDED FROM CUBA. — The first large consignment of invalided men from the seat of war arrived on board the transport *Olivette*, from Santiago, on July 16th. There were in all 272 wounded and ill, including a number of officers, and on the following day they were distributed to various hospitals in the city. It is stated that all but four of the patients are in a fair way to recover. One hundred of the men were quartered at the Marine Hospital at Clifton, Staten Island, and 56 at the Army Hospital on Governor's Island, while 54 were sent to St. Peter's Roman Catholic Hospital in Brooklyn, and 50, including the four very serious cases, to the Long Island College Hospital, Brooklyn. Two of the officers were taken to Roosevelt Hospital, and the others to Fort Wadsworth, Staten Island.

Miscellany.

THE LOSS IN KILLED AND WOUNDED BEFORE SANTIAGO.

THE revised report gives the number of killed in the actions of July 1st, 2d and 3d, as 231, and of wounded as 1,283. Considering the fact that about 20,000 troops were engaged, and that the difficulties to be overcome were very great, this is to be regarded as a small percentage, being slightly less than eight per cent. It appears, in general, that those killed were shot in a necessarily fatal spot, the head or chest, for example, and were, therefore, from the outset beyond the hope of surgical skill. On the other hand, many were wounded; some, of course, severely and some slightly. In no case has there been suppuration or a rise in temperature. Here the excellent work of the medical staff has shown itself; and the number of recoveries will, no doubt, be exceedingly large, so far as one may judge at this early date from the published reports. In spite of the improvements made in the implements of war, it is probable that the small arms are not more destructive to life in battle than they were many years ago. The possible rapidity of fire begets a certain carelessness, and it is said that the average proportion of effective bullets is as one to four hundred. With the clean wound which these bullets usually make and the skilled treatment of the wounds, when made, we have some of the most distressing after-features of a battle removed.

AMERICAN MEDICAL ASSOCIATION'S STANDARD OF REQUIREMENTS.

AT the recent meeting of this Association the following was unanimously adopted:

Whereas, The American Medical Association did at Detroit, in 1892, unanimously resolve to demand of all the medical colleges of the United States the adoption and observance of a standard of requirements of all candidates for the degree of doctor of medicine which should in no

manner fall below the minimum standard of the Association of American Medical Colleges; and

Whereas, This demand was sent officially by the Permanent Secretary to the dean of every medical college in the United States and to every medical journal in the United States, now, therefore, the American Medical Association gives notice that hereafter no professor or other teacher in, nor any graduate of any medical college in the United States, which shall after January 1, 1899, confer the degree of doctor of medicine or receive such degree on any conditions below the published standard of the Association of American Medical Colleges, be allowed to register as either delegate or permanent member of this Association.

Resolved, That the Permanent Secretary shall within thirty days after this meeting send a certified copy of these resolutions to the dean of each medical college in the United States and to each medical journal in the United States.

FOUR ARGUMENTS AGAINST NOISE.

THERE are four reasons, says the *Philadelphia Medical Journal*, why every physician and every other good man should wage persistent war against unnecessary noises:

(1) Because in a certain and an increasing number of sensitive and "well" people such noises distinctly aid in carrying them over the easily passed line from comparative health among the sick and "unfit for service," thus surely increasing the sick-rate.

(2) Because they decidedly destroy the vital and restorative powers of the sick, and thus clearly increase the death-rate.

(3) Because they dull and brutalize the nervous systems of those who can and do learn to withstand their pathogenic influences.

(4) Because they serve to make the sensitive and cultured, who are able to do so, separate themselves in their search for quiet from the masses, who must endure, thus serving to intensify the license of the noise-makers, by lessening the checks upon their crimes. The separation of the community into classes is exaggerated in this way, and these growing wider apart, make impossible desirable helpfulness, sympathy and mutual understanding of each other. Noise is undemocratic; it should be un-American.

It must, however, be admitted that noise belongs, in a sense, to civilization, and is a measure of its progress, and no doubt has come to stay. We learn from an editorial in the *Medical Record* that an anti-noise society has been established in New York. We certainly wish its incorporators success, but their task is a difficult one.

EXPERT TESTIMONY.

IN a discussion on expert testimony recently held in Philadelphia, Dr. H. C. Wood said that he had heard much medical expert testimony, and that some of the latter seemed to him beyond even the possibility of ignorance. But when it came to the question of how medical expert testimony is to be improved, he did not see any light in the answer. It cannot be improved by paying attention solely to the position of the expert. He had seen a physician of high position in a well-known medical school testify in court that the yellow staining of the tissues throughout a man's central organs was due to nitric acid absorbed through the lungs, and that the acid had circulated in the lungs sufficiently to stain the tissues. A single drop of free nitric acid circulating in the blood would be like a lightning stroke, yet the man recovered seven or eight thousand dollars for an alleged inhalation of nitric acid. It is Dr. Wood's belief that far more evil is wrought by neglect of medical testimony than by evil medical testimony. He has seen many cases where injustice was done either through absence of medical testimony or by ignoring it even when uncontradicted.

MEDICAL BARBARISMS.

WE are well aware that the English used by writers on medical subjects often does not conform to good usage. "Operate," as a transitive verb, we are unfortunately growing accustomed to, but it is fervently to be hoped that the following, cut from a medical college announcement, may never be accepted: "He will *clinic* (italics ours) in the amphitheatre once weekly," etc.

The following suggestion with regard to the not infrequent misuse of the word "case," is taken from the *Philadelphia Medical Journal:* "According to the dictionaries and common usage, 'a case' is the instance or history of a disease, the series of symptoms, circumstances and treatment constituting the special occurrence of a disease. Plainly and undoubtedly therefore the 'case' is very different from the 'patient.' And yet in every page of medical writings one sees an utter disregard of the distinction, a usage not only inelegant and incorrect, but often misleading and ludicrous. How in the world can a case 'be taken ill,' 'put to bed,' 'have a fever,' or 'die'? The patient may thus be spoken of, but it is absurd to speak of the case having a pulse-rate or temperature, of being comatose or delirious, dead, or posted. 'A case' thus reported is quite likely to suffer cremation."

THERAPEUTIC NOTES.

TREATMENT OF CHRONIC RHINITIS BY GLYCERIN TAMPONS. — Dr. Vladimir de Holstein[1] recommends glycerin tampons for the treatment of chronic coryza, basing his claim on the well-known properties of glycerin in reducing local congestions, as evidenced by its extensive use in gynecological practice. He employs pure glycerin only, as boric acid or ichthyol add nothing to the efficacy of the application, and may at times provoke irritation of the lining membrane. The tampons must be applied into the anterior nares at least twice a day for ten or fifteen minutes.

In treating painful swelling of the cervical portion, Lutand[2] applies the following:

℞	Tannin	3 i.
	Lycopodium	3 iiss.
	Europhen	3 v
	Pulv. opii. compos.	gr. xv.

This is applied through a speculum and secured with a cotton tampon.

VOMITING OF UTERINE ORIGIN.[3]—

℞	Menthol	gr. v.
	Elixir pepsinæ	3 i.
	Tra. Opii	3 ii.

M. et Sig. Ten to twenty drops before meals.

[1] Semaine Médicale, No. 54, 1897; Bulletin Général de Therapeutique, 19e Livraison, 1898.
[2] Journal de Médecine de Paris, February 27, 1898.
[3] Lutand; Bulletin Général de Therapeutique, May 15, 1898.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 9, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1759	974	30.54	9.42	23.94	.66	2.64
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	720	293	32.62	5.74	27.44	1.82	1.68
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	319	174	12.09	6.20	5.27	1.55	1.24
Boston	517,732	166	52	11.40	16.80	4.20	3.00	2.40
Cincinnati	405,000	139	—	20.46	10.80	18.72	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	157	84	44 80	4.48	36.48	1.28	.64
Washington	277,000	—	—	—	—	—	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	67	20	22.20	7.40	16.28	—	—
Worcester	105,050	27	10	7.40	7.40	7.40	—	—
Fall River	98,919	33	11	18.18	9.09	18.18	—	—
Nashville	87,784	27	7	18.50	16.0	14.80	3.70	—
Lowell	87,193	49	28	32.64	6.12	28.56	2.04	2.04
Cambridge	86,812	21	6	14.28	14.28	9.52	4.76	—
Lynn	65,259	20	4	10.00	20.00	—	—	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	19	10	21.04	15.78	21.04	—	—
Somerville	57,977	13	4	15.38	7.69	7.69	—	—
Lawrence	55,510	31	12	16.15	6.46	6.46	3.23	3.23
Springfield	54,730	26	11	34.65	3.85	30.80	—	—
Holyoke	42,364	21	14	23.80	19.04	23.80	—	—
Salem	36,062	9	2	—	11.11	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Malden	32,894	5	0	20.00	—	—	—	—
Chelsea	32,716	14	0	—	7.14	—	—	—
Haverhill	31,406	10	3	10.00	—	10.00	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,980	—	—	—	—	—	—	—
Fitchburg	28,392	7	4	14.28	—	14.28	—	—
Taunton	27,812	5	1	—	20.00	—	—	—
Quincy	22,562	4	0	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	7	2	—	28.56	—	—	—
Everett	21,575	4	1	25.00	25.00	25.00	—	—
North Adams	19,135	9	2	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,388	11	6	36.36	9.09	36.36	—	—
Brookline	16,184	—	—	—	—	—	—	—
Medford	15,832	6	0	—	—	—	—	—

Deaths reported 3,653: under five years of age 1,737; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 989, diarrheal diseases 777, consumption 315, acute lung diseases 77, diphtheria and croup 65, typhoid fever 37, whooping-cough 37, measles 32, cerebro-spinal meningitis 20, scarlet fever 15, erysipelas 6.

From whooping-cough New York 18, Pittsburg 6, Philadelphia and Baltimore 4 each, Boston 2, Cincinnati, Lawrence and Springfield 1 each. From measles New York 19, Philadelphia 5, Baltimore 3, Pittsburg 2, Boston, Cincinnati and Providence 1 each. From cerebro-spinal meningitis New York 7, Boston 4, Providence 3, Pittsburg and Lynn 2 each, Baltimore and Somerville 1 each. From scarlet fever New York 10, Philadelphia 2, Baltimore, Boston and Malden 1 each. From erysipelas Baltimore 4, New York and Philadelphia 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending July 2d, the death-rate was 14.9. Deaths reported 3,203; acute diseases of the respiratory organs (London) 162, whooping-cough 94, measles 77, diphtheria 55, diarrhœa 54, fever 29, scarlet fever 27, small-pox (Newcastle-on-Tyne) 1.

The death-rates ranged from 9.0 in Preston to 22.8 in Sunderland; Birmingham 15.0, Bradford 12.5, Bristol 12.2, Croydon 10.9, Huddersfield 11.2, Hull 15.2, Leeds 15.6, Leicester 11.7, Liverpool 18.4, London 14.5, Manchester 17.0, Newcastle-on-Tyne 20.8, Nottingham 14.6, Sheffield 17.0, West Ham 12.6, Wolverhampton 19.0.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JULY 14, 1898.

BANKS, C. E., surgeon. Granted leave of absence for two days from July 5, 1898.

PECKHAM, C. T., passed assistant surgeon. To report to Chairman of Board of Examiners at Washington, D. C., for examination to determine fitness for promotion. July 12, 1898.

BROOKS, S. D., passed assistant surgeon. To report to Chairman of Board of Examiners at Washington, D. C., for examination to determine fitness for promotion. July 14, 1898.

WHITE, J. H., passed assistant surgeon. To proceed to Fort Monroe, Va., for special temporary duty. July 13, 1898.

CARRINGTON, P. M., passed assistant surgeon. To report to Chairman of Board of Examiners at Washington, D. C., for examination to determine fitness for promotion. July 13, 1898.

PERRY, J. C., passed assistant surgeon. To assume temporary command of Port Townsend Quarantine during absence of Passed Assistant Surgeon S. D. BROOKS. July 14, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Fort Monroe, Va., for special temporary duty. July 14, 1898.

DECKER, C. E., assistant surgeon. Placed on waiting orders from July 23, 1898. July 7, 1898.

RECENT DEATHS.

FREDERICK WILLIAM VOGEL, M.D., M.M.S.S., of Roxbury, died July 16, 1898, aged fifty-two years.

EDWARD HAMILTON KIDDER, M.D., M.M.S.S., of Fall River, died July 16, 1898, aged thirty-three years.

BOOKS AND PAMPHLETS RECEIVED.

Reports of the Health Department of the City of New Haven, Conn., 1897.

New Forceps for Intestinal Anastomosis. By Ernest Laplace, M.D., LL.D., Philadelphia. Reprint. 1898.

The Woman's Medical College of Pennsylvania, Catalogue and Forty-ninth Annual Announcement, May, 1898.

Progressive Loss of Brain Weight in Dementia. By Warren L. Babcock, M.D., Ogdensburg, N. Y. Reprint. 1898.

Seventeenth Annual Announcement and Catalogue of the Woman's Medical College of Baltimore for the Sess on 1898-99.

Report of a Case of Acute Double Hydrocele, due to Secondary Syphilis. By Howard Paxton Collings, B.S., M.D., Hot Springs, Ark. Reprint. 1898.

Seventeenth Annual Report of the State Board of Health of New York. Transmitted to the Legislature February 15, 1897. Printed by the State. 1898.

The Transactions of the Medical Society of the State of California. Twenty-eighth Annual Session, Fresno, April, 1898. Vol. XXVIII. Published by the Society.

Septic Perforation of the Right Internal Carotid Artery. Autopsy Five Months after Death. By A. Jacobi, M.D., and James Ewing, M.D., New York. Reprint. 1898.

Some Observations on the Treatment of Tabes Dorsalis. Auto-Intoxication in its Relations to the Diseases of the Nervous System. By Daniel R. Brower, M.A., M.D., Chicago, Ill. Reprints. 1898.

Hay Fever and Its Successful Treatment. By W. C. Hollopeter, A.M., M.D., Clinical Professor of Pediatrics in the Medico-Chirurgical College; Physician to the Methodist Episcopal Hospital, etc. Philadelphia: P. Blakiston, Son & Co. 1898.

Notes on Massage, including Elementary Anatomy and Physiology. By Jessie M. Ward, Instructor in Massage in the Pennsylvania, Philadelphia, Jefferson, Women's and Presbyterian Hospitals, etc. Philadelphia: P. Blakiston, Son & Co. 1898.

A Compend of Diseases of the Skin. By Jay F. Schamberg, A.B., M.D., Associate in Skin Diseases, Philadelphia Polyclinic; Dermatologist to the Union Mission Hospital. With 99 illustrations. (Quiz Compends, No. 16.) Philadelphia: P. Blakiston, Son & Co. 1898.

Inflammation of the Bladder and Urinary Fever. By C. W. Mansell Moullin, M.D., Oxon., F.R.C.S., Surgeon and Lecturer on Surgery at the London Hospital; Examiner in Surgery at the University of Oxford, etc. Philadelphia: P. Blakiston, Son & Co. 1898.

A Manual of General Pathology for Students and Practitioners. By Walter Sydney Lazarus-Barlow, B.A., B.C., M.D., M.R.C.P., late Demonstrator of Pathology and Examiner in Sanitary Science in the University of Cambridge, etc. Philadelphia: P. Blakiston, Son & Co. 1898.

A Case of Bilateral Syphilitic Ulceration of the Palpebral Conjunctiva. A Case of Hypopyon Kerato-Iritis Occurring in a Patient during an Attack of Typhoid Fever. Central Amblyopia in a Dye-Worker Probably Produced by Inhalation of the Aniline Dyes. By Clarence A. Veasey, A.M., M.D., Philadelphia, Pa. Reprints. 1898.

Yellow Fever; Clinical Notes. By Just Tonatre, M.D. (Paris), former Physician-in-chief of the French Society Hospital, New Orleans; Member of Board of Experts, Louisiana State Board of Health. Translated from the French by Charles Chassaynac, M.D., President New Orleans Polyclinic; Editor New Orleans Medical and Surgical Journal, etc. New Orleans: New Orleans Medical and Surgical Journal. Ltd. 1898.

Original Articles.

THE IMMEDIATE CORRECTION OF THE DEFORMITIES RESULTING FROM POTT'S DISEASE.[1]

BY JOEL E. GOLDTHWAIT, M.D., BOSTON, MASS.

UNTIL recently the essential part of the treatment of Pott's disease or caries of the spine consisted in fixation of the spinal column. No attempt at the reduction of the existing deformity was made, the desire being to relieve the irritation as much as possible by means of the fixation and to prevent an increase in the projection of the bones. To accomplish this result, various forms of apparatus have been devised and various methods of treatment have been suggested, but with all, while occasionally no further increase has shown and even in rare instances while a diminution in the projection has resulted, still in the large majority of cases in spite of the most careful attention and without regard to the method of treatment, the deformity has increased. The presence of this deformity has been considered a necessary part of the disease, and if it has been possible to carry the patient through to convalescence with only a moderate increase of the deformity the result has been considered satisfactory.

In 1890, Dr. Hadra, of Galveston, Tex., presented a paper at the meeting of the American Orthopedic Association in which he reported a case of fracture of the low cervical spine in which he had corrected the position of the head and maintained the position by wiring the spinous processes of the cervical vertabræ. He also advocated this procedure in spinal caries, but reported no cases.

In 1895, Chipault reported a series of cases of Pott's disease, in which the deformity was forcibly reduced with the patient under the influence of an anesthetic, and not only were the spinous processes wired, but the transverse processes as well.

In 1896, Calot presented a paper at the Paris Academy of Medicine, reporting a series of cases in which the deformity was forcibly reduced, and as a part of the procedure, in some of the cases, the spinous processes were excised.

Since then, both of these writers have made other contributions, reporting large numbers of cases, and with both, in the later writings, the cutting part of the operation has been practically given up, the whole procedure consisting of the forcible reduction of the deformity by means of traction and pressure over the prominence.

Since the appearance of the first communication from these two writers, numerous other surgeons, chiefly on the Continent, have reported cases of a similar nature, and while in some of the early cases incision was resorted to with removal of or wiring of the spinous processes, the majority of the operations have consisted simply in forcibly straightening the spine.

The after-treatment in common use consists in the application of a plaster-of-Paris dressing, in which the whole body and head is included, and this is worn without changing for six months.

While for practical purposes the operation performed by Chipault and Calot in new, it is not, however, the first time that spinal deformities have been forcibly reduced. The history of medicine shows that at different periods a similar procedure has been practised by different surgeons, and it is not improbable that in days, generations or centuries ago, when reports and records of cases were not as carefully made or as common as now, the immediate reduction of the spinal deformities was not a rare operation. Hippocrates, writing five hundred years before Christ, speaks of the procedure as an old one, and reports several different methods for accomplishing the result.

One, which is termed Succussion, as described in the Adams translation, Sydenham edition, and in Bigg's "Orthopaxy," consisted in putting the patient on an ordinary ladder and securely fastening the hips and legs, leaving the upper part of the body free. The ladder with the patient, feet uppermost, was then drawn up to a "tower, or the mast of a ship," and dropped. Before reaching the ground the fall was suddenly stopped, and in this way, with the head downwards and the lower part of the body fastened to the ladder, the upper part, which was unattached, jerked the vertebræ apart and corrected the deformity.

Another method also ascribed to Hippocrates and described in Bigg's "Orthopaxy" is more suggestive of a surgical operation, and it should be said also that this is the method which was preferred by Hippocrates for "gibbosities," as the disease was then termed.

"Something like an oaken bench, of a quadrangular shape, is to be laid along at a distance from the wall (in which there had previously been scooped an oblong furrow), which will admit of persons passing around, if necessary, and the bench is to be covered with robes, or anything else which is soft, but does not yield much. The patient, after being stoved and bathed with hot water, is to be stretched upon the board upon his face, the arms being laid along and bound to the body. Next, the middle of a thong, which is soft, sufficiently broad and long, and composed of two cross straps of leather, is to be carried along across the patient's breast, as near the armpits as possible, then what is over the thongs at the armpits is to be carried around the shoulders, and afterward the ends of the thong are to be fastened to a piece of wood resembling a pestle; they are to be adapted to the length of the bench below the patient, and so that the pestle-like piece of wood resting against this bench may make extension. Another such bond is applied about the knees and the ankles, and the ends of the thong fastened to a similar piece of wood, and another thong, broad, soft and strong, in the form of a swathe, having breadth and length sufficient, is to be bound tightly about the loins, as near the hips as possible; and then what remains of the swathe-like thong with the ends of the thongs must be fastened to the piece of wood at the patient's feet, and extension in this fashion is made upward and downward equally, and at the same time in a straight line."

Still another method, as described by Jones and also attributed to Hippocrates, is as follows: "The patient being laid on his back, a leather bottle, not inflated, was laid under the deformity and blown up by an assistant with a forge bellows." This particular method, as might be expected, is described as not being successful.

Ambrose Paré, writing in 1647, in an article entitled "How to Restore the Spine Outwardly Dislo-

[1] Read at the meeting of the American Orthopedic Association, held in Boston, May 18, 1898.

cated," describes a method which is surprisingly similar to that followed by Calot and the French school at the present time. His method is as follows: "The vertebræ outwardly dislocated, when as they stand bunching forth, then is it fit to lay and stretch forth the patient upon a table, with his face downwards, and straightly bind him about with towels under the armpits and about the flanks and thighs; and then to draw and extend as much as we can upwards and downwards, yet without violence." It also states that if traction is not sufficient, two pieces of wood are to be cut out and, when padded, are to be applied over the spine and the correction made by pressing down on these with the hands.

Other writers speak of the procedure. Joerg accomplished the result by continued traction in bed with pressure over the hump.

However much the operation may have been performed in the distant past, certain it is that for many years or generations the treatment has consisted in fixation of the spine in the deformed position and in limiting the development of the deformity as much as possible. Braces have been devised which have attempted the reduction of the deformity, but very little if any improvement has been accomplished in this way, and anything like forcible correction has been carefully avoided. To Chipault and Calot must be given the credit of this present radical departure from the conservative methods which have so long been in use. In the past at different periods separated by many centuries a similar operation has been performed but for reasons which unfortunately the historians do not supply, each time the operation has been given up, to be revived centuries later, and then after a brief trial to be again forgotten. At this time it would be particularly interesting if the reasons could be known why the method has so many times dropped into disuse, and one can but wonder if another generation will find the immediate reduction of such deformities a matter of history. Certainly, if we are to expect all that has been claimed by the writers who have written the most, and have advocated the method most strongly, our disappointment will be keen, and but a short time will be necessary for the whole procedure to be discarded. Few surgeons familiar with the disease are willing to believe that the correction of humpback, which is merely a symptom of Pott's disease, and a plaster-of-Paris jacket worn for six months will make the patient well. If, however, the method is to be accepted as one part of the treatment of Pott's disease, to be used in selected cases, as other methods are used, this, together with our more perfect knowledge of mechanical therapeutics, makes it seem probable that much good will follow, and that in a certain number of cases the existing deformity will actually be diminished, and that in most of the early cases the increase will be less than has formerly been the case.

The exact operation, as commonly performed both in England and on the Continent, is described by Jones as follows:[1]

"Having determined to forcibly reduce the deformity in a case of Pott's disease, it is necessary to carefully prepare our patient, more especially if the plaster corset recommended by Calot be applied. For two or three days previously the patient should be dieted with a view to supplying nourishment and avoiding waste concretions. The bowels should be thoroughly well opened, so that if necessary abdominal pressure may be applied by the hand without risk; and for the same reason, the bladder should be empty. It is hardly necessary to state that the skin should be deodorized and disinfected, and that the head should be shaved. In order to avoid insect life, the scalp should be treated for a sufficient time. An assistant should now prepare the traction bandage. This consists of two linen bands a yard long. The centre of one piece is placed around the occiput, the centre of the other round the chin. They meet beneath the ear on each side, and at this point are firmly fixed by safety-pins. The free ends are knotted, and an assistant takes a loop in each hand, or, more conveniently still, the loops may be attached to a crossbar of wood or other material. The linen bands must be of equal length, otherwise the head is not pulled in line with the spine. They should be fully a yard long, in order that the assistant who controls the head may be well out of the way of the anæsthetist. This traction is quite essential, as one cannot act upon the spine by manual grasp upon the head for any length of time. In addition to the assistant who controls the head, six others are needed: Two for the arms, two for the legs, one for chloroform, and one to directly assist the operating surgeon. Chloroform having been administered, at a given signal traction must be exercised. If the patient be small he need not be supported by chest or pelvic rack. A child of two and a half years requires a pull of 220 kilos. before the neck is dislocated. Traction, therefore, measured if necessary by the dynamometer, should be well within that strength. Roughly speaking, five men, pulling with a force that soon tires, rarely exceed 70 kilos., so that the danger of dislocation is very slight. All, however, should pull together, and there should be no jerk. This applies more especially to the assistant who controls the head. Simple traction will reduce the deformity in a large number of cases, particularly in curvatures situated high up. If it does not, direct pressure must be applied to the hump. An assistant places his hand upon the abdomen with sufficient power to feel the bodies of the vertebræ, and it is to anticipate this pressure that I have advised a careful diet and an empty bowel. This pressure on the vertebræ from the front is a check upon the surgeon who presses directly upon the hump, and who uses sufficient force to reduce the deformity, if he can do so with safety."

Such is the operation as it has been performed. The aggregate number of cases which have been operated upon in this way is quite large, and the immediate results have been surprisingly good, while the cases in which unpleasant complications have developed have been remarkably few when the amount of force used is considered.

My own work upon the subject was commenced this past winter; and at the very outset, it was a matter of much surprise that the correction could be accomplished with so much ease in the majority of cases, provided the spine was bent backward at the time traction was made. It was a matter of equal surprise that it was so difficult to maintain the correction no matter how carefully the after-treatment was managed. The position when the jacket was applied would be satisfactory, but when it was removed the deformity would be almost as bad as ever even though the jacket retained its shape and even though it was applied with much less padding than is recommended by Calot, who uses an

[1] Robt. Jones: The Immediate Obliteration of Deformity in Pott's Disease.

inch thickness of felt all over the body. This led to much experimentation, and it was soon found that if the patient was placed upon the back and all the weight of the body above the thighs was borne upon a small upright which rested directly over the apex of the kyphosis, that the spine could be over-extended much more than was possible with suspension or horizontal traction, and that jackets applied in this position gave more satisfactory results.

At first this method was used simply to obtain the best possible position of the spine after the forcible straightening under ether, but it was soon found that the same apparatus could be used for the correction, and that in a surprisingly large number of cases, no other force than the weight of the body was necessary to straighten and over-extend the spine. With the spine in this over-extended position the head was thrown so far back, and the body weight put so much upon the spinous and transverse processes, that it was possible to discard the helmet as a part of the support except when the disease was situated above the fourth dorsal vertebræ. In nearly all of the cases since the first, the after-treatment has consisted in the application of a plaster-of-Paris jacket carried low enough to grip the pelvis and to limit the motions of the thighs, and also high enough to prevent the shoulders from drooping forward, and the bending forward of the head.

In the early cases ether was used for the correction, but since then the work has been done entirely without anesthetics except in the cases where the disease has been of several years' duration. Cases of one and two years' duration have been easily straightened without ether, and with practically no pain or suffering to the patient.

In this way the operation has been simplified to such an extent that the word operation is hardly necessary for its designation, and it is so simple that in the acute or early stages of the disease the patients are treated in the office or the hospital out-patient department, the correction being accomplished and the jacket applied with no more disturbance than is expected with the application of such an apparatus in the ordinary method. In some of the cases the relief of the existing acute symptoms has been very striking with the improved position of the spine.

The apparatus which has been used for this purpose is pictured in Fig. I, and consists of a strong gas-pipe frame, six feet long by two feet wide. Suspended from this is a bar (*a*) in the centre of which is a vertical rod (*b*) forked at the top and long enough to reach to the level of the frame. This cross-bar is simply suspended from the frame so that its position can be changed as desired. Below this is another cross-bar (*c*) which rests on the frame and can also be adjusted as to position. Upon this latter piece (*c*) and upon the fork of the rod (*b*) rests two malleable steel bars (*d*) about eighteen inches long. These rest in grooves one inch apart, and should be bent to partly conform with the lumbar curve of the spine after which they are heavily padded with felt and the patient laid upon it as is shown in Fig. II. The upper end of the bars (*d*) should just rest upon the fork (*b*), not projecting over, and when the patient is in position the rod (*b*) should be one inch above the apex of the deformity. The buttocks rest upon the cross-bar (*c*) and the legs are supported by one or more heavy webbing straps which can be tightened or loosened at will. No support whatever is given the upper part of the body except that the head is steadied by the surgeon with the hand until a satisfactory amount of correction has been accomplished and then a strap similar to those used below gives the support so that the operator's hand is free. If traction is desirable it can be applied by means of a windlass which is attached to each end of the frame. This makes it possible to obtain much more definite and steady traction than would be possible with assistants, but its use has not been found necessary in the majority of the cases, simple over-extension of the spine accomplishing the same results.

When the maximum over-extension that is desirable is obtained the strap under the head is fastened and the patient allowed to lie in this position while the jacket is applied. In applying this the iliac crests should be generously padded with heavy felt and a similar pad should be placed over the upper part of the sternum so that the jacket can be carried high up to prevent the upper part of the body with the shoulders from drooping forward. In the cases with disease in the upper dorsal region the jacket should be moulded about the anterior part of the neck so that the erect position of the head is necessary. The forked rod (*b*) is easily avoided by a few figure-of-eight turns of the bandage, so that when the plaster has set the patient can easily be lifted off and as the rod (*b*) should be placed one inch above the apex of the deformity this weak spot in the jacket is not objectionable.

When the patient is taken off the frame, the two rods (*d*) are slipped out from below leaving the padding in place.

As a matter of experience, it has been found necessary to practically always cut a small window over the point of greatest deformity as otherwise when the body settles down, as is inevitable, a slough will form even though a liberal amount of padding has been used.

With a method so simple it would be unwise to report all of the cases in which it has been used, as one case does not differ essentially from another unless there be some special complication. In all a large number of cases has been treated, and in all in which the disease has not lasted more than a year, both in adults as well as children, the correction has been accomplished without ether and without suffering. In some of the cases two or three sittings have been necessary to obtain a satisfactory position, but this is true also of the method used by Calot. In the older cases, or cases of longer duration than one year, many of them have been corrected without an anesthetic, and while with quite a number ether has been necessary for the first sitting to break up the adhesions, it was not needed at the subsequent treatments, the frame alone being sufficient to accomplish the result.

A few cases reported with some detail may be of interest by way of illustration:

Case I. A girl, five years of age, was brought to the Children's Hospital in March, 1898, because of a bunch in the back, said to have been present for two weeks. The extent of the deformity is shown by the tracing Fig. 3 (*a*). The child was put upon the frame, and just before the jacket was applied the tracing shown in Fig. 3 (*b*) was taken. During the whole treatment not a cry or complaint was made by the child.

Case II. A boy, five years of age, who had a marked knuckle, as is shown in Fig. 4. The child was put upon

the frame, and without ether and without pain, the position shown in Fig. 5 was obtained.

CASE III. A girl, eleven years of age, who had had Pott's disease for three years and had worn a brace for over two years. In February of this year the position of the spine was as is shown by the tracing, Fig. 6. When put upon the frame, without ether and without pain, the spine was straightened, as is shown in Fig. 7.

CASE IV. A boy, nine years of age, had had Pott's disease for over three years with steadily increasing deformity, in spite of careful mechanical and general treatment. The general condition had been steadily growing worse, and for this reason the correction of the deformity was attempted. The condition just before the operation is shown in Fig. 8. Ether was used for the first correction, but for the subsequent treatments the frame alone has been all that was necessary. The improvement in the child's general condition after the correction has been very striking, due apparently very largely to the better opportunity for deep respiration. The condition three weeks after the operation is shown in Fig. 9, and nine weeks from that time or twelve weeks from the operation is shown in Fig. 10. The improvement in position between these last two photographs is quite noticeable and illustrates the gain which can be made from time to time as the jackets are changed. There has been no pain from the first and the child has been up and about with the exception of the first two weeks.

As to the age of the patients, most of them, naturally, have been children, the youngest, and this one corrected without ether, being four years of age, while the oldest patient was a man of thirty-five. No unpleasant results have been experienced, while in practically all of the cases the symptoms have been relieved, and the paralysis which was present in five of the cases disappeared almost at once.

In one case there was an abscess which had been discharging for some time. No unpleasant symptoms developed, and the course of the abscess has not been noticeably changed by the treatment. This is given as a contraindication for the operation by some of the writers, yet it does not seem to me that the risk is materially increased provided there is a free outlet for the discharge. On the other hand, there must always be some risk and a very considerable risk, especially if much force is used, from the possibility of rupturing a small beginning abscess, too deeply seated and too small to be detected by examination.

The effect of the correction upon the paralysis has been most interesting and in the five cases with this complication the improvement has commenced almost immediately after the spine has been straightened. Other observers report similar results without much regard to the exact method by which the correction has been accomplished.

This experience would seem to show that in spite of the varying theories as to the cause of the paralysis, pressure must be the most important element, and that there can be little if any degeneration of the nerve cells or fibres as restoration of motor control has been at times immediate. In my own cases the improvement occurred at once in two cases, both adults with whom the correction was performed without ether, the power returning while the patient was upon the frame during the straightening. One of these was particularly striking, and beginning with almost complete loss of motor control of the legs as well as the bladder and the rectum, as the spine straightened he was able to move the legs. These cases are so striking and contrast in such a marked way with the results obtained by the ordinary methods of treatment, that a report of the separate cases is offered.

CASE I. A young woman, twenty years of age, had had Pott's disease for between three and four years, and in spite of treatment the deformity had increased to the extent shown in the tracing (Fig. 11). Paraplegia developed nearly two years ago, and after recumbency for one year there was a partial return of power of the legs, and the patient was allowed up, wearing a leather jacket. The improvement continued for two or three months, and then the paralysis returned so that the bed was again resorted to. The early part of this year the patient was admitted to the Carney Hospital, and under ether the spine was straightened and a plaster-of-Paris jacket applied. The next day (the muscles were not tested on the same day) there was quite perfect voluntary control of the legs. The patient remained in bed for about four weeks and was then allowed up. Even though the control of the muscles of the legs returned, the exaggeration of the knee reflexes and ankle clonus persisted for two or three months, although this was not marked enough to interfere with walking. This has disappeared apparently as the muscular strength has returned. The patient now walks easily and without other peculiarity to the gait than would be shown by any one with whom the spine was held rigid. (Fig. 12 shows the position at the present time.)

CASE II. A man, twenty years of age, was seen first in November, giving a history of spine trouble of five or six months' duration. Paralysis developed after two or three months of treatment, and for this the patient was put to bed, but after two months, there being no improvement, he was admitted to the Carney Hospital. At that time there was not only complete loss of power in both legs, but also paralysis of the bladder and rectum.

On March 14th, without ether, the spine was straightened upon the frame, and as it straightened the power to move the legs returned. No discomfort whatever was felt by the patient during the treatment, except a momentary sense of suffocation as the straightening commenced. When fully straight breathing was easier than it had been previously. Since then there has been a gradual improvement in the strength of the legs and in the ability to get about. (Fig. 13 was taken just before the operation, and Fig. 14 about four weeks later.)

CASE III. A boy, eight years of age, had disease in the upper lumbar region which had been under treatment for one year. There was only a slight projection of the spine, and during the year there had been practically no increase. In March of this year paralytic symptoms developed in both legs. After a month of bed treatment, during which time there had been no noticeable improvement, the spine was over-extended without ether and a plaster-of-Paris jacket applied. Following this there was very marked improvement, and at the end of two weeks the child was allowed up, and has continued to do well since. The exaggeration of the reflexes has entirely disappeared.

CASE IV. A man, twenty-seven years of age, was first seen in November, 1897, with Pott's disease in the dorsal region, of one and one-half years' duration. At the time of the first examination the knee-jerks were markedly exaggerated and a distinct ankle clonus was present. These symptoms increased so that walking was difficult, and in the following month the patient entered the St. Margaret's Hospital, and without ether a correction of the deformity was attempted. The jacket was applied lying on the face on a hammock, and served to hold the spine quite well for a few days, but after that the body seemed to settle into the jacket and the paralysis, which had been relieved, returned. This was repeated for two or three times, each jacket being followed by some improvement, but of short duration.

After this the patient was sent home and kept in bed; in spite of which the paralysis increased, so that there was practically no control of the legs. The bowels were

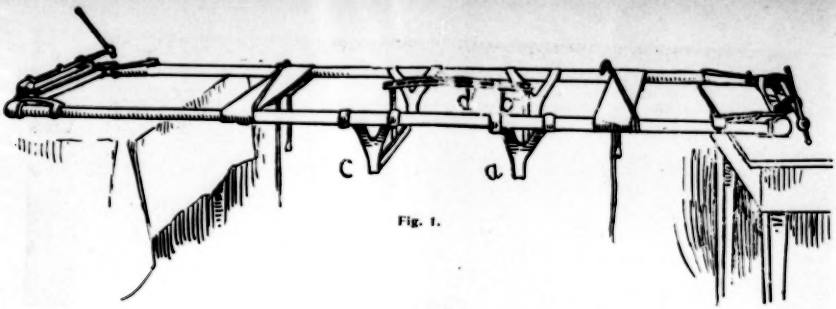


Fig. 1.



Fig.3



Fig.4.





Fig.6.



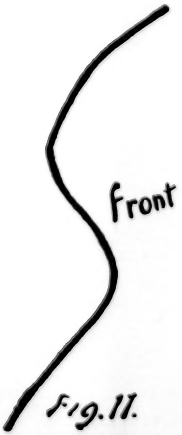


Fig.11.











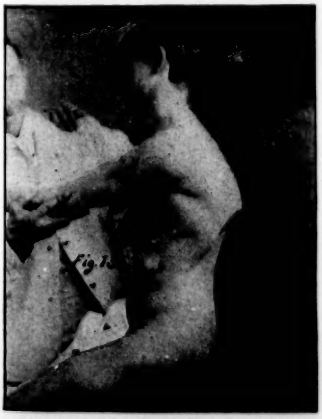


Fig. 8 represents Case IV before operation.

Fig. 9 represents Case IV three weeks after operation.

Fig. 10 represents Case IV twelve weeks after operation.

Fig. 13 represents Case II before operation.

Fig. 14 represents Case II four weeks after operation.



also involved, and dejections were impossible without assistance.

On April 7th the patient was again admitted to the hospital, and by means of the frame, which had been perfected since the first treatment, the spine was straightened, and a jacket applied holding the over-extended position. While on the frame there was a partial return of voluntary control of the legs, more perfect on the left side. Since then two other jackets have been applied, each being followed by a gain in the use of the legs; so that at the present time the patient is able to walk about very easily, and the bowels, for which cathartics had been necessary for several months, have moved regularly without any assistance whatever since the spine was straightened.

Case V. A man, thirty-six years of age, with dorsal Pott's disease, which had not been recognized until the time of the first examination in April last. My advice had been asked because of a right-angled deformity of the right knee as the result of an old tumor albus. At this time both legs were paralyzed. The treatment was imperfectly carried out, owing to the fact that the patient lived at a distance from the city and it was necessary to use an improvised apparatus; nevertheless, with the imperfections, a marked gain in motor control of the legs resulted.

The results in these cases are in marked contrast with the results obtained by recumbency, which has until now been the accepted method of treatment.

In Myer's series of 270 cases the average duration of the paralysis, in the cases in which recovery took place, was as follows: in the cervical region, twelve months; in the upper dorsal region, nine and a half months; in the lower dorsal region, six months; and in the lumbar region, eight months.

My own experience has been similar to this series, with the paralysis as it has been seen in children. In adults the duration has been much longer; and eighteen months to two years has been more nearly the average time required for recovery.

The immediate results in such a series of cases are so strikingly satisfactory that the ultimate condition of the patients is apt to be overlooked, and in the first enthusiasm over the operation the exact pathology of the disease seems to have been forgotten. Certain it is that the deformity can be reduced in a large number of cases, but the fact remains that the cause of the deformity is the destruction of a considerable portion of one or more vertebræ, as the result of tubercular disease. It is also well known that bone repair in this disease takes place much more slowly and less completely than in the other forms of bone disease. Also it is well known that the reparative process in the bone can take place only after the tubercular granulations have been absorbed, a matter always involving many months or years; and what is also an important factor is that, as the bone-forming elements have been so largely destroyed by the disease, the amount of new bone formed must be slight and wholly inadequate to fill the large gap that would be left after the treatment of the severe cases. Claims have been made that bone repair has taken place very rapidly after the operation, and Calot and Ducroquet both present radiographs which are intended to prove this. The reproductions from these, however, are very far from satisfying, and one must be decidedly doubtful when it is realized that all of the pathological material which it has been possible to study shows little if any attempt at the formation of new bone. As tuberculosis of the spine is not essentially dissimilar from tuberculosis of the other bones and joints, and as the pathological condition found in the specimens which have been examined is entirely similar to the condition found after like treatment in other joints, it is probable and reasonable to suppose that the process of bone repair has not been radically changed by mere forcibly straightening the spine.

The immediate results of the work are most striking; but if this is to be the chief purpose, and unless the after-treatment is carried on most patiently and intelligently for years afterward, certain it is that the ultimate results will be as disappointing as the first results have been gratifying, and that relapse will be the rule. Already relapses have been reported by Pean, Phocas, Tansch, Lorenz and Vincent, and many others must follow, if a few months of after-treatment, as Calot would have us believe, is all that is necessary to accomplish a cure. It must be remembered that simple straightening of the spine does not materially alter the course of a tubercular disease. It may be slightly modified in some regards, but the disease is still the same.

Much good, however, will certainly follow the introduction of this method, and it will undoubtedly have its place as a part of the treatment of Pott's disease; and as the result of it in the future, humpbacks will, in all probability, be less common.

From my own experience it seems to me that the chief place for the operation is in the very early stages of the disease before extensive destruction of the bone has taken place. In these cases, instead of fitting apparatus to hold the bones in the deformed position, the spine should be over-extended and the jacket or the apparatus applied in this position. By doing this the weight is removed from the bodies of the vertebræ as much as possible and the irritation due to the diseased bones rubbing together is very largely relieved. It is reasonable to suppose that, as a result of this, the course of the disease will be somewhat shortened and that the destruction of the bone and consequent production of deformity will be lessened.

In the cases in which there is paralysis the operation is, without question, the best treatment; and in a certain number of other cases in which there is marked deformity, with the narrow chest and poor general condition, and where the deformity is increasing, the operation should be undertaken. In this latter class the general condition is improved by the more erect position, with the freer chest movement, so that the vital resistance is increased. In these cases the supports should be worn until the patient has attained the full growth, and then when the support is removed the relapse or the development of the deformity will be comparatively slight, as the ribs will then be firm enough to help in maintaining the erect position.

CONCLUSIONS.

It has been clearly shown that similar operations have been performed at different periods in previous centuries.

The operation, as simplified by the writer, has been performed in a large number of cases, upon which the paper is based.

An apparatus is described by which it is possible to accomplish the correction without the necessity of a large number of assistants and which makes it possible to apply the plaster-of-Paris jacket with marked hyperextension of the spine.

No unpleasant results have been experienced, and in the five cases in which paralysis was present the recovery was almost immediate.

In the acute beginning cases the operation seems to promise a moderate diminution of the existing deformity, and with the method of after-treatment, as advised, it is probable that the course of the disease will be shortened and that the usual increase of the deformity will be avoided.

In cases in which there is marked deformity the operation is justifiable at times, in order to secure better respiratory and digestive action, as well as to improve the position of the spine. In these cases considerable relapse is to be expected, owing to the extensive destruction of the bones and the imperfect osseous repair which takes place in tubercular disease.

A CASE OF KOLPITIS EMPHYSEMATOSA.[1]

BY JAMES M. JACKSON, M.D., AND JAMES H. WRIGHT M.D.,
From the Laboratory of the Massachusetts General Hospital.

THE following case of emphysema of the vagina has been of considerable interest to me, although in no way remarkable, inasmuch as it is the first case of the kind which I have seen in the living subject.

Mrs. C. M., aged forty-six, married, two children, last one eight years ago.

In September, 1897, that is, six months ago, patient was admitted to the Massachusetts General Hospital. Hysterectomy for multiple fibroids and double salpingotomy for pyosalpinx were successfully done, and the patient was discharged in four weeks in very good condition.

On December 28, 1897, that is, three months after operation, patient come to the Out-patient Department of the Massachusetts General Hospital, complaining of considerable pain in the region of the scar, leucorrhea and pain in the back. Examination showed some reddening of the mucous membrane of the cervix and vagina, and a thin, whitish secretion, slight in amount. Bimanual examination showed a rather large stump of the uterus adherent to abdominal incision. There was considerable tenderness on pressure over the stump, but otherwise the examination was negative. Hot vaginal douches and suppositories of boroglyceride were ordered.

On the 23d of January, 1898 (four weeks later), the examination showed a general roughening of the cervix and upper half of the vagina, as though covered with a fine papular eruption. The mucous membrane was dry, and in places felt like thin parchment. To the examining finger was imparted a crackling sensation which was very striking.

Through the speculum, the cervix and upper half of the vagina were seen to be somewhat injected and studded with what appeared to be numerous small vesicles, varying in size from a pin's-head to a split-pea. The membrane over these apparent vesicles was thin and distinctly pale in color. In the centre of some of the larger ones was a small black spot, evidently a little hemorrhage. A clear mucous secretion covered the vaginal wall, but no pus was present. On pricking one of the largest and most tense of these nodules with a very fine knife, a hissing sound was heard, which proved conclusively that gas or air had been confined in this nodule or cyst. The wall collapsed, but no fluid escaped. From some of the others a very small amount of perfectly clear, transparent fluid escaped with the gas.

[1] Read before the Obstetrical Society of Boston, March 15, 1898.

I then asked Dr. J. H. Wright, pathologist to the hospital, to see the case with me. Cultures were taken from the secretion in these nodules, and a piece of the mucous membrane of the vagina, with nodules *in situ*, was dissected out for examination. Dr. Wright's report of his examination is as follows:

Sections stained with hematoxylin and eosin.

In the submucosa are a number of circular empty spaces, the largest about one milimetre in diameter. These spaces are lined by a layer of cells, of variable thickness, in places being thin and flat, in others thicker, and consisting of large, abnormal cells, often multinuclear, presenting the appearance of being flattened by pressure from within the spaces. Over one of the circular spaces, the epithelium is thin and atrophic.

In addition to these, there are also present a number of irregular, slit-like spaces, of variable size, which are rather indefinitely lined by larger and smaller abnormal cells, many of which contain numerous nuclei.

From a study of the sections, it is probable that the condition is one of abnormal growth of the endothelium of the lymph channels of the submucosa, together with a dilatation of the channels to form cystic cavities. The histological as well as the bacteriological examination gave no evidence of an infectious process.

As most of the larger blisters had been opened during the examination, nothing further was done in the way of treatment, except to wash out the vagina with corrosive sublimate solution, and to insert a wool tampon.

Two days later the vagina showed but very few small vesicles. These were pricked and a tampon inserted. On January 27th no trace of the former trouble could be found, and the vaginal mucous membrane appeared perfectly normal. There was still a slight amount of thin mucus in the vagina. There was at no time any complaint of heat or smarting in the vagina itself. As this disease is somewhat rare, it may not be out of place to give, in a few words, a general descripiion of the condition.

This disease was first described by Von Winckel, who gave to it the name of *Kalpohyperplasia cystica*. Later Zweifel, noting its resemblance to other emphysematous conditions, gave to it the name of *Kolpitis emphysematosa*, by which it is now universally known.

The disease is characterized by an eruption of gas-containing cysts in the vagina. It occurs with greater frequency in the pregnant than in the non-pregnant. Nothing is known of the etiology of the disease, but there is nothing to point to its being an acute inflammatory process. The only symptoms which have ever been noted are a smarting sensation high up in the vagina and a slight leucorrhea. The symptoms are so slight in character that the condition is often overlooked, and most of the cases have been discovered purely by accident. The process is, for the most part, confined to the upper two-thirds of the vagina and to the cervix. The nodules appear singly and in groups, varying in size from a pin's-head to a split-pea. They look like small vesicles or cysts. The mucous membrane covering them is pale and very thin, while the surrounding tissue is normal or slightly injected. The nodules contain gas, or gas and a small amount of serous fluid. The nature of these contents has not been studied, so far as I know.

It is noteworthy that in the specimen which we studied, there is no small-celled infiltration, which leads us to the conclusion that this particular case was not

due to an acute inflammatory process. Also that the cultures were negative.

The peculiar feeling of dryness and crackling imparted to the examining finger is pathognomonic of the disease.

In regard to the pathology, Carl Ruge stated some years ago, that the gas was to be found in the spaces of the connective tissue. Eisenlohr believes it to be due to micro-organisms in the connective tissue. Another theory is that there is a marked dryness of the vagina, a gluing together of the minute folds of the vagina, thus sealing up a certain amount of fatty matter, a breaking down of this encapsulated material and the formation of gas. Chiari states that the gas is developed in the dilated channels of the lymphatic system, probably in the lymph capillaries.

Judging from the specimen which we have here, it is very evident that the gas is contained within a ves-

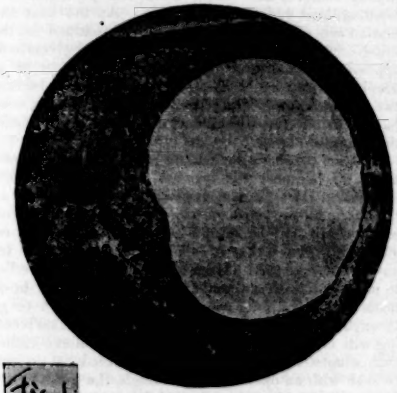


Fig. 1.

Section through portion of wall of vagina, showing one of the cystic cavities immediately beneath the atrophied epithelial layer, and one of the irregular spaces lined with giant cells. Low magnifying power.

sel of some sort; and this vessel, according to Dr. Wright, has the appearance of a lymphatic vessel. This precludes the possibility of its being one of the spaces in the connective tissue or a gluing together of the folds of the vagina. We have nothing new to add to the knowledge on this subject, except to substantiate what Chiari has said in regard to the pathology.

I had hoped that we might find in the cultures the anërobic bacillus of Welch, which would have cleared up the etiology beautifully, but my hopes were vain.

The course of the disease is short, and yields quickly to treatment, which consists in opening the nodules and applying tampons.

Since writing the above, a second case has turned up at autopsy at the Massachusetts General Hospital. She was a patient of Dr. John Homans, by whose kind permission I report the following:

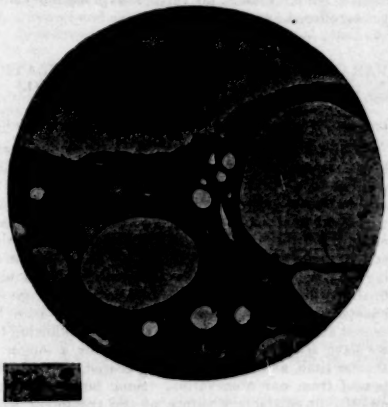
CASE II. A. B., forty-three years old, married eighteen years. Has had three abortions, last one three months ago. No cause for abortions known. No children.

Four years ago was told that she had a fibroid of uterus.

Examination at entrance, March 20, 1898, as follows: "Perineum intact. Os normal. Cervix normal in size and position. Fundus uteri much enlarged, and bimanually is felt to be irregular in form, slightly movable. Lateral cul-de-sacs impinged upon by a tumor. Mass felt posterior to uterus, and probably part of it."

On March 24, 1898, abdominal hysterectomy was performed by Dr. Homans. A large fibroid was removed, together with both tubes and ovaries, the cervix being left.

Her recovery was rapid, and on April 13th she was sent to the Convalescent Home at Waverley. Five days later she was sent back to the hospital, as she had suddenly become insane. As everything about the seat of operation was in perfectly good condition, she



Showing cystic spaces in tunica propria and submucosa. Over the largest space the epithelial layer is atrophied.

was transferred to the medical side, where she died, on April 23d, of broncho-pneumonia.

The following is the report of the autopsy by Dr. Wright:

At the autopsy, twenty hours post-mortem, the genital tract showed the following conditions: The ovaries, Fallopian tubes and the corpus uteri were lacking, the uterus being represented by a stump corresponding to the cervical portion of the organ. In the mucosa of the vagina, which was bathed in a dirty, grayish, rather thick fluid, were numerous, grayish, semi-translucent vesicles or cystic areas, sometimes slightly projecting. They were for the most part one or two millimetres in diameter. One of the larger, when ruptured by pressure, gave a faint report, as if containing gas. They were most numerous in the superior portion of the vagina and over the surface of the cervix uteri, becoming less numerous below. The mucosa of the inferior portion of the vagina also presented a black-red mottled appearance.

Pieces of the vaginal wall and of the cervical portion of the uterus were hardened in Zenker's fluid, and sections prepared for histological examination. The sections showed numerous rounded, empty spaces, like small cysts, in the tunica propria and submucosa. They occurred singly and in groups, and varied in diameter up to about two mil-

metres. Contiguous spaces were sometimes separated from one another only by a thin septum of connective tissue. In some instances a larger space might be seen pushing upward the epithelial layer above it, which was more or less atrophied.

The margins of the spaces were sharply defined, and in some cases presented indications of being lined by thin endothelial cells. In other cases, this endothelial lining could not be made out. At the margin of a very few of the spaces a few flattened multinucleated, atypical cells were observed, which were regarded as of the same character as those seen in Case I.

No evidence of a bacterial origin for the condition was obtained. As in the first case the spaces seemed to arise from the dilatation of lymph channels.

It will be seen that both cases followed abdominal hysterectomy, and the thought immediately suggests itself, may not this condition in some way be due to a blocking of the lymphatic system as a result of the operation? As to the formation of gas in these dilated lymph vessels, no further explanation can as yet be offered.

EARACHE: CAUSES, TREATMENT, RELATION OF THE EXANTHEMATA THERETO.[1]

BY GEO. L. RICHARDS, M.D., FALL RIVER, MASS.,
Otologist and Laryngologist to Fall River and Emergency Hospitals.

WHO of us has not been called, many times it may be, to relieve, for child or adult, that most excruciating pain, an acute earache? Who of us has not felt himself or herself almost helpless in its presence, and wondered what he or she could do to relieve the pain, while the little sufferer moaned and tossed and cried, and seemed not a whit the better for all we were doing? Have we not seen the pain last for hours until finally, when child and attendants were well-nigh exhausted, nature has perforated the drum, the pain has ceased and the child has gone to sleep? Following this we have seen the ear discharge pus for a longer or shorter time, and the pain having ceased, the case has passed from our observation. Such being the facts, and the unsatisfactory nature of the treatment being generally recognized, I offer no apology for bringing to your notice to-night the subject of earache considered broadly as to its causes, and with especial reference to treatment and the relation of the exanthemata thereto. I include under the term earache those acute affections of the external canal, the drum and the tympanic cavity characterized by acute, more or less severe, pain in the ear.

(1) Otitis media externa, including furuncle therewith. This affection is characterized by swelling and pain in the external canal, radiating to and sometimes involving the drum membrane. The pain varies with the severity and extent of the inflammation, but is not as severe as in affections of the deeper parts. In furuncle the mouths of one or more glands become stopped up; there is localized swelling and great discomfort, sometimes great pain, though in the main it is discomfort rather than severe pain. In my experience this is more common among adults than in children. In the more diffuse form there is general swelling, and the whole canal may be closed. I will not consider the etiology but confine myself to the question, Given the condition, what can we do for its relief? If the inflammation has gone on to pus formation, we should incise and liberate the pus, remembering that the amount of pus is always small, and that relief often comes from the incision even when no pus is present. Before the inflammation has reached the pus stage two methods of treatment are applicable, both of which have been found very useful: gelatin bougies as originally introduced by Gruber, and local applications. A modified formula for the bougies is given farther on. The bougie is inserted into the swollen external canal, and is allowed to dissolve there; and good results follow.

For this affection I am in the habit, however, of using a simpler remedy which has the merit of being always easily obtained and of invariably giving relief, never doing any harm, and of being applicable at any stage of the inflammation. I refer to a five-per-cent. solution of carbolic acid in pure glycerin. The carbolic acid produces anesthesia and eases the pain, while the glycerin, on account of its affinity for water, rapidly removes the serum from the part, and the swelling, heat and tension subside. As the heat and tension are often the things most complained of, the relief afforded is very great. The carbol-glycerin is applied on a small wad of cotton so rolled as to go as deeply into the canal as possible, and changed every two to four hours. Once the patient has been shown how he can do this by the doctor, he will readily make the changes himself.

Suppose this does not wholly relieve, and it becomes necessary to incise the furuncle or any part of the swollen canal? Do not attempt to do it without an anesthetic unless you have a specially tractable patient, or the result will be unsatisfactory to both. The region is so tender that it is practically impossible for any one to hold still. Give a little chloroform or ether to primary anesthesia, and then with a suitable knife make an incision long enough and deep enough to go through all the tissue it is desired to open. The bleeding will doubtless be profuse, but will relieve rather than otherwise. Do not be disappointed if no pus comes; with an opening deep enough, the pus, if there is any in the vicinity, will find its way out. Apply the carbolic-acid-glycerin compound as before, and soon the patient is well.

(2) Earache due to acute trouble in the middle ear from whatever cause. This is most common in children, less so in adults. In the majority of instances it is due to extension of inflammation from the nose and naso-pharynx along the Eustachian tube to the middle ear. Hence the catarrhal troubles of childhood, enlarged tonsils, adenoids and the exanthemata are the most common causes. The intimate relationship between adenoid growths and ear trouble has been often pointed out. Seventy-four per cent. of Meyer's cases of adenoid growth had ear trouble; and it is the experience of every one paying any special attention to the matter that a very large proportion of the cases of running ears have these growths as a cause, or one of the causes. The close anatomical relationship between the adenoid growth and the mouth of the Eustachian tube is sufficient to account for this. Furthermore the adenoid, being a lymphoid structure, is much more swollen and prominent at some times than at others; hence it may complicate the case many times when it is not the prime cause.

As exciting causes, catching cold perhaps comes first and most prominent; then la grippe, measles, scarlet fever, chicken-pox, whooping cough, diphtheria, pneumonia, syphilis, tuberculosis, meningitis and disorders

[1] Read before the New Bedford Medical Society, March 28, 1898.

of the teeth, etc. In connection with all of this latter group of diseases it must not be forgotten that earache is among the possibilities, and may explain some pain not otherwise accounted for. I have recently had a very decided case of earache for which paracentesis was needed, occurring in the case of that ordinarily mild disease, chicken-pox.

The diagnosis is ordinarily easy; and yet I imagine a good many cases of earache in very young children are overlooked at the time, and only thought of when the presence of a running ear calls attention to that as a possible cause of the pain. Many cases of convulsions, extreme fretfulness, inability to sleep, refusal of food, symptoms simulating meningitis, perhaps called that, are nothing more or less than an earache in a child too young to tell where its pain is. Fortunately nature is kind, and in a few days makes an outlet somewhere, usually in the direction of least resistance; but nature, while a good physician, is a poor surgeon, and it is far better to make the diagnosis and pursue the appropriate treatment before perforation has taken place or the pus perchance made its way into the mastoid antrum or through the glenoid fossa. In the young child the diagnosis is often difficult; but the moaning cry of pain, the putting of the hand to the head, more or less fever, refusal of food, wincing when the ear or side of the head is touched, convulsions, perhaps unconsciousness, combined with inspection of the drum membrane will materially aid. In the older child the diagnosis becomes easy; then the child puts the hand to the ear and complains of the pain. I suppose there is no pain more severe than that of an acute earache. I have not yet forgotten the time when as a child I suffered from it for several hours. The agony was intense, and all measures for its relief seemed of no avail.

The minute pathology of the disease I do not now consider; suffice it to say, that there is an acute inflammation in a narrow, bony walled cavity. As the process goes on the lining membrane becomes congested, serous fluid is poured out, the Eustachian tube closes, and except the opening into the antrum there is no place for the products of inflammation to pass out. As a result there is a steadily increasing pressure on the foramen rotundum, foramen ovale and drum membrane; the latter becomes bulged outward, thickened, and it may be separated into its two layers, with fluid between them. If no relief comes, the fluid may later become purulent through the action of bacteria travelling along the Eustachian tube. If not absorbed or not drained through the tube, it forces its way through the distended and weakened drum membrane and discharges through the canal. Failing in this the mastoid may be involved and the more serious brain complications result. In the more acute forms there is no relief until the fluid vents itself; in other cases the continuing pressure seems sometimes to finally blunt the sensibilities of the tympanic nerves, and the pain diminishes before there is discharge or perforation, a sense of fulness with more or less loss of hearing, even to complete loss, being always present. Externally the drum membrane will appear bulged outward in degree dependent upon the stage of inflammation and quantity of fluid present. It may appear reddened and injected or the landmarks completely lost, the drum even presenting a macerated appearance with loose epidermal cells; this latter especially if various applications have been made previous to the inspection.

Here, then, is the clinical picture: inflammation with fluid formation in a small bony walled cavity, capable of extension to the important structures in the neighborhood, and with the ever-present danger of injury to the hearing, characterized by pain of a severe lancinating character. What is to be done in the way of treatment? How best prevent injury to the drum and delicate structures, and how best preserve the hearing from present and future damage? First, the pain must be relieved. That the efforts of physicians in this direction have not been always crowned with success is proven by the large number of remedies suggested by various authors. Even the distinguished Politzer, in the last edition of his text-book, suggests all of the following as appropriate remedies in acute otitis media (acute earache):

1. Acetate of morphia, 0.2 in olive oil 10, applied as drops to the affected ear.
2. Oil of hyoscyamus, 2½ drachms; aqueous extract opium, 12 grains; as ear drops.
3. Opium salve, externally to mastoid and along canal.
4. Olive oil and chloroform, equal parts as ear drops.
5. Aqueous extract of opium and water, equal parts, put in the ear.
6. 10 per cent. carbolized glycerin.
7. 5 per cent. cocain in the nose, so as to reach the Eustachian tube, opening and influencing the ear from this direction.
8. Warm poultices to the whole aural region.
9. Tincture opium and water in varying proportions, in the ear as drops.
10. Cover the whole head with hot, moist cloths.
11. Anodynes internally.
12. Leeches in front and behind the ear.

To these may be added the following taken from other sources:

Cocaine, 5–10 per cent. solution in the canal.
Cold about the ear, hot applications in the ear.
Covering the ear with dry cotton.
Hot water bottle.
Air douche, with Politzer bag; but this only when acute symptoms have subsided. If well borne it can be used, but if it causes pain it is countraindicated.

Dr. Whitney, of New Bedford, reports very good results from the application directly in the ear of a few drops of the following: olive oil, ten drachms; chloroform, one drachm. This, he says, does not hurt when first put in and quickly relieves. To be repeated as needed. From my own experience I have the following to suggest as having given fairly good results: tincture of opium, or more preferably the fluid extract, one ounce; with atropia, four grains; mix. An equal quantity of this added to an equal quantity of hot water and the external canal filled with this as hot as can be borne; the ear stoppered with a small pledget of cotton and the hot-water bottle applied to the ear.

The ordinary hypodermic tablet (morphia, ¼ of a grain; atropia, $\frac{1}{150}$ of a grain) dissolved in some hot water answers the same purpose, and has the advantage of being always at hand. Five-per-cent. carbolized glycerin used as for furuncle is often very efficacious, and has served me well, being continued after perforation has taken place or paracentesis has been done.

Of late I have been using some aural bougies, samples of which I show you. They are the aural bougies of Gruber modified by Wood, of Dublin, to which I have added from three to five per cent. of carbolic acid. They each contain three-sevenths of a grain of liquid extract of opium, one-fourteenth of a grain of cocaine and one-fourteenth of a grain of atropia in gelato-

glycerin, to which is added the carbolic acid. The proportions of gelatine and glycerin are important, and should be such that the bougie when inserted into the ear readily dissolves. To effect this there should be no more gelatine than is necessary to hold the glycerin in shape. When made they are covered with lycopodium. To use, wash off the powder with a little warm water, stick the end of a pin or toothpick into one end and then slip into the ear. They are very slippery and can be inserted without causing the slightest pain. Stopper the ear with cotton and lay the child down with a lightly filled hot-water bottle over. The bougie soon dissolves and the anodyne effect will last for hours. Furthermore, the glycerin is distinctly curative in that it tends to draw out some serum from within and lessen the tension. A paracentesis may perhaps be prevented.

In connection with any of these external remedies I believe in giving, if there is any fever, from one-eighth to one-half a minim of a tincture of aconite hourly for a few doses, sufficient morphia or opium in some form to in a measure quiet the pain, and a saline cathartic. The pain is apt to be worse at night than in the day, and we must not deceive ourselves and think the attack is over because with the advent of day the patient seems better. Supposing that in spite of all our efforts that the pain still continues, what next? In other words, when is paracentesis to be done? In answer to this question I cannot do better than to quote from Hartmann, who says: "Paracentesis is not indicated in simple catarrh of the middle ear and in cases of moderate pain. On the other hand, whenever the drum membrane is decidedly bulged outward from the pressure of the accumulating secretion, and when this pressure and the continuing fever and pain threaten spontaneous perforation, then paracentesis is strongly indicated. Besides this, it is indicated whenever after the subsidence of the acute pain quite a degree of deafness remains, due to the non-absorption of the retained secretion, the objective examination showing the presence of this secretion." I am sure it is better to do now and then a paracentesis when perhaps the case would have got along without it than to neglect to do one when it is indicated, even though it should happen, as has been claimed, that a serous inflammation is thereby converted into a purulent one through the entrance of germs along the canal. The operation, if done under ordinary antiseptic precautions, is devoid of any danger, and, if there is fluid, invariably relieves the pain. Also, whenever after the acute attack is over there is evidence of an accumulation of fluid in the tympanic cavity, it is better to remove it.

Two recent cases of mine will illustrate this point. A young girl, fourteen, delicate, severe earache several days, anodynes locally and internally. Some adenoids being present, these were removed. Examination of the drum at this time showed some fluid, but not a great deal, and when I saw her in the daytime there was seldom any pain. But nearly every night there was pain; and although I had at first thought that nature would absorb all of the fluid and that paracentesis would be unnecessary, I later concluded to puncture the drum. Some fluid was evacuated; the pain ceased entirely; and the hearing, which had been much impaired, was entirely restored.

Absorption seems to go on very slowly in the presence of much fluid. Remove the fluid, and resolution then goes on rapidly. The following case will illustrate this: A woman, forty years old, had an attack of acute otitis media. The pain subsided under the skilful treatment of her family physician. A month later, finding that she was still hard of hearing, she came to me. I found the tympanic cavity full of fluid, the landmarks lost, and the drum bulging very decidedly outward. I did a paracentesis, and quite a quantity of fluid came out. The opening promptly healed, but it was two or three weeks before complete restoration of the hearing took place. I think in this instance, that, if the case had been wholly left to nature, there would have been more or less permanent loss of hearing, due to the thickening of the articular surface of the ossicles resulting from long-continued contact with the inflammatory products.

Paracentesis often prevents a serous inflammation from becoming a purulent one, prevents adhesions and permanent damage to the ear. Long-continued suppuration is always productive of harm and is difficult to cure. In an acute case, if in doubt, perforate the drum. The wound heals only too quickly, while the perforation made by nature is a round one eroded on the tympanic surface and slow of healing; the cicatrix is thinner than the rest of the drum and often bound down by adhesions to the inner wall of the tympanum, resulting in a partial loss of its vibratory function. While I believe in conservative treatment, I think were paracentesis done oftener in acute cases that there would be fewer cases of long-continued suppurative ear disease. The operation is not difficult provided one is accustomed to the use of the forehead mirror and is familiar with the topography of the drum. A paracentesis needle, or very small knife, will answer. Have the patient anesthetized unless you are sure he will hold still. Give a few drops of chloroform or ether to primary anesthesia. Cocaine, even in strong solution, only partially takes away the pain. A person perfectly familiar with the operation and able to work quickly can do it without anesthesia other than cocaine, but one who does it but seldom should have the patient absolutely still. Be sure that your illumination is good and that you see just what you are doing; then perforate in the posterior inferior quadrant, parallel with the drum border, carrying the incision nearly to the floor of this quadrant. Be sure that the opening is large enough and that the drum is perforated, not pricked in its outer layer. Syringe the canal with warm antiseptic solution before the operation and stopper the canal with sublimate or iodoform gauze, afterwards replaced as often as soaked through, or gauze or cotton soaked in carbol-glycerin as before mentioned. Keep the wound open until the discharge ceases. If it is not, it may have to be reopened. This can be done with a fine probe or the Politzer air douche. In Politzer's clinic the air douche is used after every paracentesis, but I am in the habit of not using it until a subsequent visit, as a rule. The air then passes readily through the opening and the products of inflammation are blown out. If there is an earache coincident with a perforation, it may indicate that the opening is so small that the secretion does not have sufficient vent, and the paracentesis knife may be needed to enlarge the opening.

The after-treatment consists of daily syringing or wiping dry with cotton, the use of the air douche and the insufflation of a small quantity of aristol with stearate of zinc. This powder works admirably.

The consideration of the possible complications growing out of conditions of which earache is a symptom, or the principal symptom, is beyond the scope of this paper, as is also the consideration of the chronic purulent discharges which often follow acute conditions. A large share of the cases coming under the aurist's care result from lack of treatment or improper treatment of such conditions as I have described; and of all the causes mentioned there are none more productive of permanent damage than the exanthemata, and of these scarlet fever is far the most serious. The most obstinate cases of purulent disease of the ear, those attended with the greatest amount of permanent damage to the tympanic cavity and the function of hearing, occur in connection with, or as sequelæ of, scarlet fever. Too often it is overlooked or paid little attention to until the damage is too great to be more than partially remedied. In my experience, the worst cases of old suppurative ear disease with large perforations, or complete destruction of the drum and one or more ossicles, with foul discharge and considerable caries and granulation tissue, have had their origin in scarlet fever. Affecting as it does the throat and involving the Eustachian tube, there is every opportunity for the disease to invade the tympanic cavity and do much damage there. The same is true, though in much less degree, of measles and diphtheria. In all of these the possibility of injury to the ear should be borne in mind. Any pain which is referred to the ear should be investigated. If there is any deafness during the disease or during convalescence, the cause should be carefully sought for. Fluid in the tympanic cavity should be drained and any resulting discharge properly treated. No case of the exanthemata should be regarded as finished as long as there is any discharge from the ear.

I do not suppose any member of this Society has ever been guilty of telling a parent that the child would outgrow conditions such as I have referred to, although if the testimony of patients is reliable they are often so told. The outgrowing of diseases of this nature is a pernicious fallacy. The children never outgrow them. On the contrary, as the ear remains bathed in pus the pathologic process continues active, threatening all the time the general health and gradually destroying the hearing. When the individual seeks the help of the aurist, it is usually too late to do more than save the remnant of hearing and bring the active suppuration to a close; and even this is not always accomplished, as old adhesions remain. Let me urge upon you the necessity of looking carefully into the aural conditions present in your cases of the infectious diseases and of the exanthemata, especially in cases of scarlet fever, as scarlatinal deafness is much easier to prevent than to cure.

In searching for the causes of an earache the intimate relation between the nerve supply of the ear and the teeth must not be lost sight of, nor the clinical fact that some cases of earache are dependent on dental irritation. Conversely, toothache is sometimes relieved by remedies applied to the ear, especially those remedies containing chloroform. I have already referred to the grippe as a cause of earache. It is a very common cause, a large number of the acute serous inflammations having their origin in this disease. It is much less serious in its sequalæ than the ear troubles incident to the exanthemata, having less tendency to eventuate in prolonged suppuration. Here, however, the liability of the ear to trouble should be borne in mind.

Clinical Department.

FRACTURE OF THE NOSE COMPLICATED BY A RHINOLITH.

BY TIMOTHY J. REARDON M.D., BOSTON.

Complications are the rule in fractured noses, and consist for the most part either of a separation of the cartilaginous septum, of fracture of the same causing various degrees of obstruction to nasal respiration, of hematoma of the septum, or of abscess of the septum either unilateral or bilateral.

The fracture may also be complicated by its extension into the orbita or by implication of the cribriform plate. Zuckerkandl reports an interesting case in this connection in which there was fracture of the nasal bones with a depressed fracture of the pars ossis nasalis frontis extending into the frontal sinus, and fracture of the ethmoid extending into the orbita and implicating the middle turbinate. The whole thing healed, though with more or less deformity.

Fracture of the processus nasalis of the superior maxilla is infrequent. Fracture of that process is interesting because it usually implicates the turbinates.

A case by Freytag illustrates this: A boy, ten years old, was struck by the clenched fist of another lad. The effect of the blow remained unnoticed for a few days by the boy's parents. Upon examination it was found that the part corresponding to the processus nasalis was occupied by a large swelling externally. Internally the apertura pyriformis was found to be tender and covered with pus. The latter was removed and beneath was a grayish-red mass. Attempts to extract this anteriorly failed; so it was pushed back into the pharynx and expelled by coughing. It proved to be a piece of the lower turbinate. After the lesion healed, very little of the turbinate was to be seen.

A case, reported by Watson, of late necrosis following a fracture, is of interest. Fifteen months after a fracture of the nose, the girl appeared with proptosis accompanied by a nodular swelling at the lower inner angle of the right orbit. She had a sero-purulent discharge from the corresponding side of the nose. A swelling inside the vestibule prevented internal examination. Vision was good and there was no diplopia. A small sequestrum was removed from the lower angle of the eye and the symptoms soon disappeared. I have been unable to find any case similar to the one I now present.

Mr. M., age twenty-eight, was seen by me, June 17, 1897. About noon of that day, while riding a bicycle, he had struck his nose against the temple of the pole rider of a tandem coming from the opposite direction. Both machines were moving rather slowly at the time. The patient immediately experienced considerable pain about the bridge of his nose: a profuse epistaxis began and continued until he was seen by me four and one-half hours later; it was then only moderately severe. Externally there was considerable swelling about the root of the nose and under both eyes. A fine crepitus could be felt caused

probably by the air contained in the tissue. On deep pressure a distinct bony crepitus was to be felt; this was accompanied by pain. There was apparently no depression of the parts. On internal examination the septum was deviated to the left and almost occluded the left nostril, the turbinates on that side being in touch with the septum. On the right the passage was wide and when the blood was removed a grayish mass was visible lying close by the side of the lower turbinate. The middle turbinate appeared normal; the lower turbinate was reddened and excoriated. The agger nasi seemed to be normal and was not depressed, though there appeared to be slight bleeding from this point. The septum was movable at its juncture with the nasal bones but a fracture into it could not be definitely made out. No exposed bone could be felt in the region of the agger nasi.

The grayish mass on the right I attempted to remove, but it at first resisted all my efforts. A small piece, which I broke off, by its concentric formation and extreme brittleness showed the nature of the mass. After cocainization with a 10-per-cent. solution, the entire mass was rather easily removed.

It proved to be a rhinolith, round in shape, and on section, white in color; it was about one centimetre in diameter. Chemical examination showed it was made up of calcium phosphate, magnesium phosphate, calcium carbonate and considerable organic matter. It had as a nucleus the proverbial cherry-stone.

An excoriated, bleeding area marked the spot where the rhinolith had been situated. The bleeding soon ceased, and the area was dusted over with sozoidol powder. The removal of the rhinolith allowed the patient to breath freely through the right nostril. A plaster dressing was applied externally and a corrosive gauze tampon was placed in the left nostril to combat any tendency to deviation.

June 19th. Patient had suffered but little pain; eyes were discolored, but the emphysema had disappeared. No foul odor had been observed from either nostril. Tampon removed.

June 24th. Plaster removed. Marked thickening over the bridge. Discoloration had disappeared.

June 28th. Pain had wholly disappeared. Patient stated that external appearances were as good as ever.

July 20th. Catarrhal symptoms had wholly disappeared.

With regard to the symptoms caused by the presence of the rhinolith, the patient's history previous to the accident will prove of value. He stated that as long as he could remember he had suffered from "catarrh." The right nostril had always been obstructed, and he had always been sensible of a most offensive odor from his nose. The odor was noticeable to others also. All these symptoms disappeared with the removal of the cause; otherwise he had always enjoyed good health.

The fact that the septum was not broken by the traumatism is rather remarkable. It may be explained by the presence of the rhinolith on the right side, which acted as a buttress to the septum, crowding it to the left against the turbinates, which performed a like office on the left. This support given to the septum prevented its fracture by traumatism, and, also, any marked depression of the nasal bones.

When I first saw the grayish mass in the right nostril, I thought that it was probably a piece of necrosed bone and considered its most probable origin was from a necrosed luetic septum. While this did not prove to be true, and, while after a most thorough search I have not been able to find a single reported case of fracture of a nose with a septum necrosed by lues, yet it seems strange that such cases have not occurred; for such necrosis of the septum is common and, when it exists, the support normally given to the nasal bones by the septum must be greatly diminished and the liability to fracture correspondingly increased.

In all cases of fracture of the nose it is well to remember the possibility of the presence of foreign bodies; this and other complications should always be carefully searched for and treated as the case may demand.

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Medical Progress.

REPORT ON THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

(Continued from No. 3, p. 67.)

THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.

Acute Inflammatory Diseases of the Heart.

THE general line of treatment in the vast majority of cases of acute inflammatory diseases of the heart is the same. It is necessary chiefly to consider the fundamental complaint of which the cardiac affection is in most cases a part, and this disease is, in the majority of cases, acute rheumatism. From the heart point of view and, indeed, from any point of view, all authorities seem now agreed that the right treatment of acute rheumatism is absolute rest in bed in woollen wrappings, a free relief of the bowels, and the administration of sodium salicylate in efficient doses, in combination with such alkaline remedies as the condition of the urine may suggest. The late Dr. Sibson showed that the difference between absolute and incomplete rest in the treatment of acute rheumatism was an exemption from heart complication of 71 per cent. as contrasted with 44 per cent. Few cases endure now more than five days' suffering under the salicylate treatment, and a treatment of the general disease thus successful can scarcely fail with due care and foresight to prove in some degree preventive of cardiac lesions, which are true manifestations of the rheumatic poison, usually of somewhat later appearance than the joint phenomena.

The current view that salicylates do not lessen the liability to cardiac lesions is founded on the fallacy that cases early relieved of pain and fever by salicylates are often allowed to get up too soon. If therefore on the relief of pain and reduction of temperature the patient be regarded as convalescent, and be allowed out of bed, he assumes the position of one with acute rheumatism still upon him treated with incomplete rest, and so becomes doubly liable to cardiac manifestations.

Absolute recumbency is very important in acute heart affections, because although the heart cannot be stilled its burdens and restlessness can be lightened. The mere difference between lying down and standing up to the healthy heart is 10 beats a minute or 600 beats an hour. It is greater in a heart irritated by acute disease.

There are but few special remedies that may be employed for the heart condition. The group of heart medicines is not, as a rule, applicable until the case has fully emerged out from the general disease, and has become a single organ malady. It may be said, generally speaking, that digitalis and its class are useless in acute inflammatory heart affections; that aconite, with certain exceptions, is harmful; mercury has long been abandoned with venesection and other violent measures. There are two forms of cardiac lesion, however, which may frequently be treated by moderate doses of opium with great advantage. They are pericarditis and myocarditis, conditions often conjoined.

Endocarditis in rheumatic fever affects the mitral valve most commonly, the aortic orifice much less frequently. It is somewhat inadequately urged that sodium salicylate does not influence heart affections in rheumatic fever. This view is founded on a double misconception. After the third or fourth week, the salicylates may be replaced by quinine and arsenic as remedies better suited to combat this phase of the malady.

The infrequency with which aortic regurgitation and mitral stenosis are met with in primary cases of rheumatic fever cannot fail to have impressed clinical observers. Dr. Sibson points out that of 24 cases of acute rheumatism with primary endocarditis treated by a rigid system of rest, only one gave evidence of aortic as well as mitral disease, whereas in 19 instances out of 127, or one in 6.7 cases not so rigidly treated in this respect, aortic regurgitation was present, but even Sibson did not point the lesson for he only insisted upon the importance of maintaining rest for "a period of several days after the complete disappearance of the local inflammation of the joints."

The exigencies of hospital routine, the pressure of perhaps more urgent cases, and the natural anxiety of the patients themselves to get home, result in the discharge of rheumatic fever cases even with heart complications within a month or five weeks, when perhaps another month's rest would add many years to their lives. A very bad lesson is thus taught to students. In private practice, in dealing with children and young people especially, it is not difficult to secure an adequate period of rest. At least two months after an attack of rheumatism involving the heart, and in some severe cases from four to six months is necessary to allow of a complete subsidence of inflammatory change and a restoration of due resisting power in the weakened valve. A minute attention to the temperature chart and pulse and careful investigation of the cardiac sounds will be the chief guides in regulating the rest treatment of these cases. For a further ill-defined period of months very gradual and careful return to an amount of activity suitable to the case must be permitted. Under this system of management very striking results, in many instances complete cure, will be obtained, especially in children and young people.

The cardiac group of drugs is of little value in the early stages of heart disease. The object is to promote resolution and the healing process. The primary object is not at this stage to increase heart power which would indeed only antagonize the desire to ease valve function. As the acute rheumatic features fade, general anemia and cardiac fatigue often present themselves for consideration in treatment, and such drugs as arsenic, strychnine and iron are strongly indicated.

At this stage, particularly in pericardial and in some endocardial cases, the employment of moderate doses of iodide, for example, a five-grain dose of combined iodides of soda, ammonia and potash three times a day seem of some advantage in helping the resolution of the inflammatory thickenings. A due regard should, however, be paid to the toleration of the iodide, and it should in all cases be combined with some tonic, such as strychnine, arsenic or iron. At the end of the pyrexial interval arises the question of the usefulness of digitalis. A quickened and irregular rhythm, one or both arising from want of power to deal with a valve defect, is the particular indication for the employment of digitalis. The drug is of little, if any, use and may do harm if the quickened action be the result of inflammatory irritation. Therefore, where the irregularity is attributable to pericarditis or myocarditis the drug is useless; where active changes are going on in the valves digitalis should be withheld unless positively demanded by a failing ventricle. In the selection of change of air for convalescent cases of endocarditis the first consideration is freedom from wetness of subsoil. Perfect sanitation is necessary, and the susceptibility of the recently inflammed valves should be borne in mind.

In cases in which the lesions are grave, the progress tedious, the necessity for rest prolonged, general nutrition may be maintained by judicious massage, such as to stimulate muscle nutrition and facilitate venous circulation. In this way they become better prepared for the gentler forms of exercise on first getting up.

Treatment of Valvular Disease.

The question here to be considered is whether the case is a suitable one for the use of remedies of the digitalis order; if so, how far they should be pushed, to what extent complete rest is required or what degree and kind of exercise will be beneficial; the general state of the patient, his nervous system, etc. From clinical observation it appears that in medicinal doses digitalis affects the heart before the vessels and so the proportionate conditions of its effective and beneficial action are secured in suitable cases. The question for treatment is whether the character of the pulse is normal to the lesion found, or does it vary from what it ought to be under the circumstances, and to what is the variation due. Looked at in this light it is perceived that in the therapeutics of cardiac affections, after the acute stage, the heart is treated, not the valve defect; while in the treatment of cardiac affections in the acute stage the measures are not so much directed to the heart as to the affected valves or pericardium, and in this latter section of acute cardiac affections there is but little use for drugs of the digitalis order and in many cases their employment should be positively avoided.

Digitalis in Aortic Disease.

There has been much dispute as to whether digitalis (the whole therapeutic group is considered in speaking of digitalis) should be used in the treatment of aortic regurgitation. While there is a steady, regular pulse, with a strong, abrupt beat, rapid subsidence and low

tension of artery, digitalis is not wanted and a powerful drug when there is no indication for it cannot but be harmful.

In all cases of aortic regurgitation, however, which are not interrupted in mid career by accidents in the way of functional disturbances of reflex origin, vasomotor angina or sudden or gradual overstrain, the time comes when the employment of digitalis is of the greatest value. The indications for its use are the symptoms of commencing failure of the left ventricle fully to respond to the heavy call upon it, provided that failure be under conditions otherwise normal to the disease. It may be, for instance, that the ventricle is temporarily overburdened by the results of some nervous, dyspeptic or gouty storm reflected upon the small vessels, and causing a measure of high tension to supervene upon that relaxed condition of the arterial system which is normal to aortic regurgitation. Under the conditions of high arterial tension thus induced, it would be very faulty practice to give digitalis; obviously a mercurial and saline treatment, or such other treatment as may specially meet the cause of the increased arterial resistance is the first measure, in combination with a little extra quietude and to be followed by a tonic calculated to restore the fatigued heart. The one thing to be looked to in aortic regurgitation is the maintenance of heart power, and any sign of overstruggle is rather to be met by measures calculated to diminish peripheral resistance:

(1) Irregularity in the heart's action.

(2) A want of precision and sharpness in the character of the pulse.

(3) Increased displacement of the apex beat to the left and extended impulse upwards.

(4) The occurrence of irregular smaller beats as marked in the pulse and appreciated at the heart.

(5) The supervention of a soft systolic *bruit* over the mitral area.

(6) Extension of cardiac dulness to the right.

(7) The almost complete replacement of the normal, regular, strong, slow, collapsing pulse and simple hypertrophic heart's action normal to aortic regurgitation, by a rapid heart's action, irregular in force and frequency, with a corresponding small pulse having the character of mitral rather than of aortic disease.

Such are in gradation the ingravescent signs of ventricle failure in aortic regurgitant disease, and the increasingly imperative indications for the employment of digitalis in its treatment.

The maintenance of strict recumbency is of course essential in grave cases and with a suitable dietary the heart soon responds to a steady daily administration of from thirty to ninety or more minims of tincture of digitalis, or an equivalent preparation with proper adjunct in the form of an occasional mercurial and saline. Patients with heart failure in aortic regurgitation are thus again and again restored by the action of digitalis.

In aortic stenosis, as soon as the normal pulse of this affection — a small, rather slow and regular pulse — becomes replaced by irregularity and frequency, accompanied by the usual signs of failing compensation, digitalis is needed. So long as the heart is beating quietly and regularly nothing but harm can come from the use of digitalis; with irregularity and disorder nothing but good, provided it be carefully watched and mitigated with returning regularity.

(To be continued.)

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SECTION ON THE PRACTICE OF MEDICINE, DENVER, JUNE 7–10, 1898.

(Continued from No. 3, p. 70.)

THE INFLUENCE OF SUNLIGHT ON TUBERCULOUS SPUTUM IN DENVER; A STUDY AS TO THE CAUSE OF THE GREAT DEGREE OF IMMUNITY AGAINST TUBERCULOSIS ENJOYED BY THOSE LIVING IN HIGH ALTITUDES.

DRS. WILLIAM C. MITCHELL and H. C. CROUCH, of Denver, presented a paper on this subject, which was read by the former.

Both the absolute and the relative moisture is low in high altitudes, and this together with the lessened atmospheric pressure and almost constant winds greatly facilitates evaporation. Extremely favorable conditions are thus created for the abstraction of moisture by the atmosphere from whatever substances it comes in contact with. The moist surface of the lungs must suffer considerable loss of moisture; and it is this battle for moisture compensation that we believe to be one of the factors by no means the least important in granting such a large measure of immunity against tuberculosis here, or in arresting or retarding such processes in their incipiency. The tubercle bacilli grows but poorly, if at all, on media deficient in moisture; and while it scarcely seems possible that enough moisture could be abstracted to leave the alveolar linings too dry to offer a suitable nidus for the bacilli, yet it is not improbable that this constant and rapid pulmonary evaporation creates conditions extremely unfavorable to its development.

Increased atmospheric pressure causes the blood to recede from the capillaries of the skin and mucous membranes, thus producing anemia of these parts. The diminished pressure of high altitudes causes greater dilatation of the capillaries, with a resulting mechanical hyperemia. The mucous membranes are often ruptured, and we may have hemorrhages from the nose, mouth or lungs. The tympanum is bulged outward, the respiratory and cardiac movements are quickened, and muscular movements are facilitated. In short, we have the condition described by adventurous mountain climbers as *mal de montagne*.

There are two conditions which militate against the spread of tuberculosis in high altitudes. (1) The powerful influence of the solar rays acting through a thin atmosphere rapidly destroys the virulence of exposed tuberculous matter. (2) The vital functions are so operated upon by the various meteorological phenomena that they are especially fortified against the invasion of the tubercle bacilli. Our experiments seem to demonstrate clearly that the immunity does not proceed from the first of these theories, and that by every logical right it may be attributed to the second proposition.

THE COURSE AND MANAGEMENT OF COMPLICATING MYOCARDITIS.

DR. LOUIS FAUGERES BISHOP, of New York, read a paper with this title.

As diseases and conditions are unconsciously classified in the course of the practice of medicine, ideas

develop which are not always easy to formulate into exact scientific observations. One of these impressions is that debility following severe disease is due to some more definite underlying condition than is generally formulated; an exhausted and deteriorated nervous system being insufficient to account for the condition. Attention is called to the heart muscle; and clinical observation, confirmed by pathological observation, has led to the belief that complicating myocarditis is an important factor in many conditions. In acute and wasting diseases of every nature there comes a time when it seems evident that the heart has participated in the debility and degeneration visible in the other tissues of the body. In milder cases there may be simply a weakness of contraction, while in the more severe the signs are indicative of myocarditis, namely, irregularity in force and rhythm.

We may conceive that the condition is an inflammatory state of the myocardium following acute disease, occurring in the course of chronic wasting disease, or beginning as an extension of inflammation from an endocarditis, or a pericarditis. Conditions secondary to diseases of the coronary arteries or excessive hypertrophy will not be considered. Our object does not demand an extended reference to pathology. A form may sometimes originate in an acute interstitial myocarditis, but more frequently it is a parenchymatous degeneration. Dr. Osler remarks that it is probably due to toxic agents and is not in direct relation to high temperature.

All are familiar with the fact that the heart of a patient who has died from acute prolonged disease is of a pale, grayish color, while that of a person killed suddenly is firm and has a healthy red color. In many diseases there is probably a low grade of inflammation, which is nothing more than a slight degeneration.

Cases are often diagnosed as general debility or disturbed cardiac enervation. It is important to recognize the real condition or else treatment may be harmful. Stimulants directed to the heart are certainly contraindicated. Stimulants should be avoided in cases of myocarditis following severe illness.

The proper care of the heart is especially important in those cases of acute infectious disease in which valve lesion has been developed by complicating endocarditis. In severe endocarditis myocarditis also probably exists and the heart must not only gain its normal power but must do greater work to make up for the lesion in the valve. These patients should follow a long and strict regimen, avoiding indiscretions in diet, sudden exertion and dissipation of all kinds.

The treatment of degeneration of the heart fibre is a difficult matter, for often by the time we can say definitely that such a process is going on it is too late to accomplish much. The hopeful cases are those of complicating myocarditis accompanying acute disease.

One of the chief dangers of this condition is overexertion, causing acute dilatation, from which it is not easy to recover. Exercise taken to improve the general bodily condition and that of the heart in particular should be light, slow and systematic. Food should be concentrated so that it is administered in small volume, leading to an easy performance of the functions of the stomach without tendency to distention, which would embarrass the function of the heart and lung. Much latitude as to the variety of food may be permitted so long as the principle of small volume is adhered to. The use of alcohol in cardiac affections without its abuse is very difficult. Probably the use of a small quantity with meals is not harmful. The use of tea and coffee must be a matter of individual experiment, but the extreme frequency of cardiac symptoms produced in persons with normal hearts by tea, and the fact that both tea and coffee are cardiac stimulants should influence us to take the stand that all cardiac drugs should be under the control of the physician. The use of tobacco should be discontinued.

The patient who convalesces from an acute disease without suffering from degeneration of the heart muscle regains health and strength rapidly; the pulse becomes strong; the color returns and the patient is soon in good health. If there is a complicating myocarditis, the patient lingers along in a state of semi-invalidism. The disease from which he originally suffered has disappeared, and there is apparently no reason why he should not recover health and strength, but the heart remains weak until special measures have been employed to restore its integrity. This chronic complicating myocarditis explains symptoms so often observed after diphtheria, grippe, scarlet fever, and other diseases characterized by a violent infection.

THE DIFFERENTIATION OF CARDIAC INCOMPETENCY OF INTRINSIC HEART DISEASE AND OF CHRONIC NEPHRITIS.

DR. FRANK BILLINGS, of Chicago, read a paper with this title.

He enumerated certain phenomena common to both of these conditions. Certain phenomena, although common in some cases to both, are more often the result of a primary heart or kidney lesion alone, and these signs are of some aid in a differential diagnosis.

If the urine, even though scant, shows a relatively low specific gravity, with diminished total solids, lessened urea, much albumin and casts of all varieties; if the artificial fibrosis is marked and the pulse full and sustained, or without arterial thickening if the pulse is sustained; if the dropsical effusion contain urea in considerable amount; if there is a tendency to inflammation of serous surfaces, especially pericarditis and pleuritis; if there is a tendency to persistent morning nausea and vomiting of stringy mucus; if there is a tendency to periodic diarrhea; if there is much headache, especially frontal and occipital; if there is a tendency to mental unrest and excitement at one time and to somnolence and coma at another; if cerebral hemorrhage occur; if the dyspnea of exertion become of the Cheyne-Stokes type; if there is severe epigastric pain; if the eye shows the changes common to albuminuria, and if the patient present a pale, waxy, puffy face and heavy expression and anemia, the diagnosis is in favor of nephritis.

If there is a history of previous disease in which endocarditis may occur; if the heart shows physical signs of valvular disease, with characteristic murmurs; if there is an irregular heart action, persistent in character; if the pulse is weak and not sustained, with or without arterial fibrosis; if the dyspnea of exertion is attended with cyanosis: if there is a normal amount of red cells and hemoglobin or only a moderate degree of anemia; if the dropsical effusion begins in the lower extremity, appearing during the day, is rich in albumin and contains no urea; if there is much enlargement of the liver and tenderness of the left lobe; if

the urine is scant, of high specific gravity, with much deposit, little or no albumin, high percentage of urea, although the total amount of urea in twenty-four hours is deficient, few casts slightly hyaline or finely granular; if little or no headache and no eye changes, and if venous thrombosis or embolism occur — the diagnosis is in favor of intrinsic heart disease.

It is not difficult to recognize an incompetent heart. The dyspnea of exertion, sense of post-sternal weight and constriction of the chest, cough upon exertion and on assuming the recumbent position, enlarged liver with tenderness, and pain or a feeling of weight in the epigastrium, the indigestion of portal congestion, scant urine, edema of the feet, or all these symptoms much aggravated until constant dyspnea with orthopnea, general anasarca, excessive physical weakness, marked pallor and cyanosis give proof of cardiac weakness. The local signs of valvular weakness may be absent or present. Cardiac enlargement with dilatation of the chambers of the heart is usually present and may be recognized.

When due to intrinsic heart disease, a valvular lesion, or some other cause of dilatation and weakness of the heart muscle, is present. In chronic nephritis, cardio-vascular changes occur, especially in the form known as diffuse interstitial nephritis. In the latter stages of chronic nephritis the heart may become so dilated as to be incompetent and the symptoms above enumerated may appear. The urinary findings may plainly indicate the primary nephritis. However, in many cases the differentiation cannot be easily made, and the diagnosis may be doubtful until after death.

DR. WEST, of Galveston, called attention to the therapeutical test in determining which condition was the primary disease.

DR. BOND, of Indiana, said that arterio-sclerosis was an important factor in both diseases; he thought this condition was usually present in both diseases.

DR. E. S. DAVIS, JR., of Chicago, read a paper on

DIABETIC GANGRENE.

Of the three cases detailed by Dr. Davis two typified the milder forms of spontaneous gangrene in diabetes. The successive invasion of different toes in one case was noteworthy. The diminution and disappearance of glycosuria in these cases, while mumification and spontaneous amputation of the toes was progressing, was interesting. A similar disappearance of glycosuria had been observed where tuberculosis of the lungs was present. Both cases were upon diabetic treatment, consisting in regulation of the diet, the use of arsenical preparations and at times opiates.

Of the three cases enumerated one was a case of *mal perforant*, which is an occasional complication of diabetes. The association is no more accidental than that of diabetes and gangrene. Diabetic gangrene occurs more often in the legs and feet than elsewhere.

Gangrene occurring in the course of diabetes associated with or superimposed upon inflammation is undoubtedly chiefly due to the low vitality of the tissues in diabetics and the consequent ease with which putrefaction takes place. In this way we may account for the frequency of gangrene of the lungs in tubercular patients having diabetes. The cause of spontaneous gangrene not preceded by visible wounds or infection is more interesting. Neuritis and atheroma have both been given as causes of spontaneous gangrene in diabetics. Both lesions frequently accompany the disease. Godlee gives two varieties of spontaneous diabetic gangrene; one due to neuritis, for which he advises operation close to the point of neurosis; and one due to atheroma, for which he advises amputation at the knee or above. According to Heidenhain, spontaneous gangrene in diabetics is pathologically identical with senile gangrene. He notes the frequent occurrence, even in early adult life, of arterio-sclerosis in diabetics. Hunt says the areas of gangrene in diabetes are less well defined than in senile gangrene. Surgeons are not inclined to operate upon this class of patients on account of their susceptibility to infection. Recent experiments show, however, that amputations can be made with good success if sufficient care is taken to avoid infection. Heidenhain [4] recommends in gangrene of the toes that we wait until a line of demarcation has formed, and if there is no evidence of general infection the dead tissue may be allowed to separate spontaneously. If the sole or dorsum of the foot is involved, the leg should be amputated at the knee or above. The speaker thought that amputation of the toe after a line of demarcation had developed was preferable to the tedium and pain of spontaneous separation.

Great care should be taken to remove sloughing tissue, and to limit putrefaction by the free use of antiseptics.

THE USE OF IRON AND OPIUM IN BRIGHT'S DISEASE.

DR. JAMES TYSON, of Philadelphia, read a paper with this title.

While speaking of the treatment of chronic interstitial nephritis in 1880, the speaker had stated that iron was indispensable and might be given in the form of the acetate or of Basham's mixture. Since that time he had changed his opinion, and thought that in many cases the iron had done considerable mischief in Bright's disease. Not every case of Bright's disease is anemic, and iron has no specific curative effect and is clearly not indicated in non-anemic cases. It is harmful, as it checks the secretions and eliminations already restricted by a diminished function of the kidneys. It may be laid down as a rule with scarcely any exceptions, that iron is not indicated and should not be given in acute Bright's disease.

Iron is contraindicated in chronic interstitial nephritis. Iron is more promptly and dangerously harmful in this than in any other form of Bright's disease.

Iron is best borne in chronic parenchymatous nephritis, especially as this form is more likely to be associated with anemia. Even here doses are given in too large amounts. If iron appears in the feces, this unabsorbed portion is useless, and this portion acts as an astringent and causes constipation.

He did not think that Basham's mixture acted as a diuretic except from the amount of water that it contained.

As to the use of opium in this disease, he had seen fatal uremia produced by a couple of spoonfuls of paregoric. Opium was certainly contraindicated in chronic interstitial nephritis. In this form he had seen many cases launched into their last sleep, and the danger lies in those whom we do not suspect to have the disease. He thought it important to always examine the patient's urine before administering opium. The greater the destruction of kidney the greater the danger from the use of opium.

[4] Deut. med. Woch., 1891.

The treatment of puerperal convulsions by the hypodermic injection of morphia is justifiable, because most of the cases are of the acute form; even here caution should be used.

We should be certain that cases requiring the use of morphine are not complicated with chronic Bright's disease.

DR. WEST, of Galveston, Tex., thought that iron was of use in acute Bright's disease. He was of the opinion that in uremic convulsions many lives could be saved by the heroic administration of morphia.

DR. STOCTON, of Buffalo, thought that hypodermics of morphine had saved many lives when all other remedies had failed. He did not agree with the reader of the paper in regard to the use of iron, but thought that small doses were beneficial, large ones not so much so, as less was absorbed.

DR. BROWN, of Cincinnati, thought that both iron and opium were dangerous in any form of Bright's disease.

DR. J. M. ANDERS, of Philadelphia, presented a paper on

RARE CASES OF ARYTHMIA.

He concluded by stating the most interesting points embodied in the cases reported:

(1) The reduplication of both first and second sounds (double reduplication) in the first two cases — one of tobacco poisoning and the other of exophthalmic goitre.

(2) The occurrence of a typical *pulsus bisferiens* in case one, dependent upon the toxic effects of tobacco, in the absence of combined aortic regurgitation and stenosis.

(3) The presence of a cyclical increase in the rapidity of the movement of the heart, followed regularly by a brief pause; and the striking mechanical effect of the respiratory function upon this peculiar variety of arythmia.

(4) The temporary production of special murmurs during the inspiratory element of the respiration.

(5) That all the cases developed in subjects in whom previously existing valvular lesions of the heart, so far as determinable, were absent.

DR. CHARLES S. BOND, of Richmond, Ind., read a paper entitled

A CONSIDERATION OF FOUR CASES OF EPILEPSY, WITH REFERENCE TO THE CAUSE.

DRS. STOCTON, LOCKARD, TYSON, JONES, ANDERS, and ROBINSON discussed the paper.

DR. HENRY SEWELL, of Denver, described

THE CLINICAL RELATIONS OF THE PAPILLARY MUSCLES.

The normal heart sounds, more or less frequently and more or less distinctly, become doubled, or reduplicated. In an article now appearing in the *American Journal of the Medical Sciences*, I have tried to show that the reduplication of the second sound at the base of the heart is due to a synchronous closure of the aortic and pulmonary semilunar valves, and that such reduplication at the end of inspiration is a perfectly normal phenomenon. The explanation of the reduplication of the first sound offers much more difficulty. Without discussing the views that have been put forward to explain this phenomenon, I will venture to enter at once upon a statement of conclusions that have gradually matured from my own clinical observations. Most, if not all, reduplications of the first sound of the heart, as well as certain sounds occurring in pathological conditions, can be readily explained as the result of valve tension produced by contraction of the papillary muscles occurring at some abnormal phase of the cardiac circle. Physiological experiments have made it clear that the *musculi papillares* are essentially independent of the muscle of the ventricular wall. It is also practically proven that the former are particularly subject to fatigue. It is also probable that the normal stimulus to the contraction of the papillares is found in mechanical tension imparted to them through sudden lifting of the auriculo-ventricular valve. Overstrain of the heart, however slight its degree, might, for the foregoing reasons, be expected to induce fatigue in the papillares and consequent lengthening of their "latent period of contraction." In such an event the valve sound produced by contraction of these muscles might be expected to lag behind the beginning of the systolic sound and thus become perceptibly separate, giving the impression of "reduplication."

Again it is easy to conceive that either the right or the left side of the heart might be independently overstrained and the reduplication consequently limited to the corresponding side. These anticipations are abundantly realized in clinical observation, and we find in this study a means of detecting and locating cardiac overstrain far in advance of its clinical symptoms. Time cannot now be given to description of the methods for determining where within the heart the chief strain is falling. Suffice it to say that overstrain on the right side of the heart is contemporaneous with abnormal elevation of venous blood pressure. I have found the signs of it especially marked in cases of pulmonary obstruction, as emphysema, pneumothorax, and in lithemia. Reduplications limited to the left side of the heart are found, especially in elevation of aortic blood pressure. Therefore they occur in the normal heart as a result of exercise; they occur in arterio-sclerosis and in forms of Bright's disease, etc. Such reduplications of the first sound confined to the left side of the heart are apt to gradually disappear when the patient assumes the recumbent position, being replaced by a single sound which is accompanied by a systolic murmur. It is impossible here to discuss the significance of this murmur, but I have presumed to call it a functional or physiological murmur.

When overstrain of either side of the heart has proceeded to a degree sufficient to produce morbid symptoms, it is very apt to be manifested by the addition of a new sound to the cardiac rhythm which is commonly erroneously known as the "reduplicated second sound." It immediately follows the normal second sound, and therefore falls at the beginning of the diastolic pause. A satisfactory explanation of the origin of this added sound is the following: When either side of the heart is overstrained, especially when this condition preponderates in the auricle, at the beginning of ventricular diastole the overstretched auricle reacts by its own elasticity upon the blood within it and sends a strong stream into the ventricle. This current sweeps back under the auriculo-ventricular valves, makes them tense and exerts a sudden pull on the papillary muscles. These muscles reply to the stimulus by a contraction which sets the valves vibrating with sufficient intensity to

give a sound. As cardiac overstrain continues to increase the papillary fatigue, their latent period is lengthened and the added sound may be gradually moved through the diastolic pause from immediately behind the second to a position just before the first sound. This change of interval, with corresponding variations in intensity, between the elements of the triple sound gives rise to the well-known "gallop rhythm." The gallop rhythm may involve either one or both sides of the heart. When it is bilateral, the rhythm may be made to disappear from the right side when the patient holds the breath. Further elaboration of this subject and the narration of cases must be deferred for a fuller report.

DR. J. M. ANDERS, of Philadelphia, said that reduplication of the heart-sounds may be due to a splitting up of either sound, but more especially to the splitting up of the second sound. He had recently seen cases that belonged to this category with presystolic thrill and murmur; additionally there was evidence of a marked hysteria. It was important and practical to discriminate between such cases and those due to valvular lesions; in this discrimination one should lay particular stress upon the neurotic condition of the patient, and also note the absence of such etiological factors as rheumatism, etc.

DR. N. S. DAVIS, of Chicago, doubted if these irregular contractions of the papillary muscles would explain all cases of reduplication; for instance, a reduplication is heard at the base of the heart, and the explanation is that it is caused by a distention or overdistention of the aorta and high arterial tension upon the right or the left side; as a result the heart is rapid, and there is a closure of the valves more upon one than upon the other side.

(To be continued.)

Recent Literature.

A Text-Book of Practical Therapeutics. With especial reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, etc. With special chapters by DRS. GEORGE E. DE SCHWEINITZ, EDWARD MARTIN and BARTON C. HIRST. Sixth edition, thoroughly revised and largely rewritten. In one octavo volume of 756 pages. Philadelphia and New York: Lea Brothers & Co. 1897.

Circumstances have delayed a notice of this excellent and thoroughly practical work on therapeutics. Its popularity is everywhere recognized, as is testified by the publication of six editions in seven years. It presents a concise and useful statement of the properties, physiological action and therapeutics of the remedies which experience has shown to be valuable or of some value. The alphabetical arrangement facilitates ready reference to the desired drug, and to overcome, so far as may be, the disadvantage that is a necessary part of this practical system, three or four pages in the beginning of the volume are given up to a list of the important drugs placed in groups, each member of the group standing in order of its value. The consideration of foods for the sick is confined to a few pages; as this is a subject of the first importance, greater elaboration would be desirable. A large part of the book is devoted to the treatment of diseases and in this practitioners will find many suggestive hints.

A System of Practical Therapeutics. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College. Vol. IV, with illustrations. Philadelphia and New York: Lea Brothers & Co. 1897.

The fourth volume of this excellent System of Practical Therapeutics supplements those published in 1891 and 1892, and gives the progress made in treatment during recent years. Many of the subjects are less fully considered than in the previous volumes, but are discussed from the standpoint of recent advances and not with a view to presenting the subject completely. Among a number of excellent articles may be mentioned "New Facts and Methods in the Treatment of Diphtheria," by Dr. W. H. Park; "The Modern Treatment of Diseases or the Skin," by Prof. Henry W. Stelwagon; "Diseases of the Blood," by Dr. Ralph Stockman; and "Diseases of the Heart," by Dr. Frederick P. Henry.

The character of this System of Therapeutics is so widely known that a full discussion of its great practical usefulness is superfluous. Those who possess the earlier volumes will wish to add the last.

A System of Practical Medicine. By American Authors. Edited by ALFRED LEE LOOMIS, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and WILLIAM GILMAN THOMPSON, M.D., Professor of Medicine in the Cornell University Medical College, New York. In four imperial octavo volumes. Vol. IV. — Diseases of the Nervous System and Mind; Vasomotor and Trophic Disorders; Diseases of the Muscles; Osteomalacia; Rachitis; Rheumatism; Arthritis; Gout; Lithemia; Obesity; Scurvy; Addison's Disease. 1099 pages, 95 engravings and 8 full-page plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1898.

This volume completes this American System of Practical Medicine. There are no less than twenty-four contributors to this volume, all well-known names of teachers in medical schools in the large medical centres, or of physicians attached to important hospitals. Four-fifths of the volume are taken up by articles on diseases of the nervous system and mind; the rest by articles on diseases of the muscles, and on various miscellaneous diseases detailed in the title.

This is one of the most important volumes of the series, and in it the subscriber becomes possessed of a very complete and up-to-date treatise on diseases of the nervous system.

The Genesis and Dissolution of the Faculty of Speech: A Clinical and Psychological Study of Aphasia. By JOSEPH COLLINS, M.D. 8vo, pp. viii, 432; with 20 illustrations. New York and London: The Macmillan Company. 1898.

To this work was awarded the Alvarenga prize in 1897. In it the writer makes no attempt to discuss all the disturbances of speech, but only the special disturbances to which the name of aphasia is given. In this discussion he adopts boldly the position taken by Dejerine and his pupils. He admits six forms of

aphasia, cortical and subcortical motor aphasia, and cortical and subcortical sensory aphasia, either visual or auditory. The existence of a graphic motor centre is flatly denied. "The zone of language contains three centres, each of them the seat of memory images of a sensory nature, and none of them of absolute autonomous activity." He follows Bastian in regarding Broca's convolution as a kinesthetic centre, destruction of which causes "loss of spontaneous speech and all forms of speech utterance for which an evocation of articulatory kinesthetic memories is required." Agraphia is always an accompaniment of such a lesion. In subcortical motor aphasia there is inability to externalize speech which has been properly formed in the speech centres. The special movements of articulation are impaired, but internal language is retained and the patient can still write. Destruction of the visual centre also entails agraphia, but in the subcortical form of visual aphasia the patient can still write. These views are maintained with much vigor and learning, and the arguments of their opponents are successfully met. Although the author subjects all the evidence in favor of a special graphic centre to the strictest criticism, he shows himself, on the other hand, ready to accept hypotheses which have far less support than the hypothesis of a graphic centre, namely, the views of Flechsig as to the association centres and Flechsig's denial of the existence of the inferior pediculo-frontal fascicle. Suggestive and alluring as Flechsig's views are, they are mere speculation unsupported by fact, and Flechsig's views as to the lack of projection fibres in his association centres have been combated by the best anatomists. Nevertheless, although Broca's convolution may send projection fibres through the pediculo-frontal fascicle and although there may be a graphic centre in process of evolution to be found only in the highly educated, the theories of aphasia advanced in this work are, we believe, those based most solidly upon the facts at present known, and they form the best working hypothesis to aid us in understanding this difficult subject, and the present treatise is certainly clear and helpful. It has become a custom lately for the neurologist to "lapse into verse." In decadent poetry it may be permissible to use strange and awful words, but in a scientific treatise, where close thinking and a clear understanding of what is written are requisite, it adds not to such understanding to be driven, perhaps in vain, to the dictionary to find the meaning of the author's cacophonous logopoietics.

The Elements of Clinical Diagnosis. By DR. G. KLEMPERER, Professor of Medicine at the University of Berlin. First American from the seventh (last) German edition, with 61 illustrations. Authorized Translation, by NATHAN E. BRILL, M.D., and SAMUEL M. BRICKNER, M.D. New York: The Macmillan Co. 1898.

This has been a popular little book in Germany, and the translators, from their own experience of its value, desire that its usefulness should be extended to their own countrymen. The book in itself is meritorious, but the number of such, under the titles of Manuals, Elements, etc., is already large and is constantly increasing.

DR. B. SACHS, of New York, has been elected a foreign member of the Society of Psychiatry and Nervous Diseases of Moscow.

THE BOSTON

Medical and Surgical Journal.

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HYSTERIA IN ANIMALS.

IT is a well-recognised fact that certain of the neuroses, such as chorea and epilepsy, and some forms of insanity occasionally occur in the lower animals. Since Kircher's famous experiment in the middle of the seventeenth century it has also been claimed that certain of the lower animals were hypnotizable, although Preyer attributed the phenomenon to the effects of fear rather than to a true hypnotic state. Observations of hysteria in the lower animals are extremely rare. In his well-known treatise on hysteria Gilles de la Tourette[1] cites several observations, but admits that he has no opinions of his own to express. He gives certain observations by Aruch,[2] a veterinary surgeon of Milan, which are of sufficient interest to warrant mention. An intelligent, affectionate bitch, two years and a half old, had had some nervous disturbance on account of her master's departure. Some time later, on first seeing her mistress holding the new-born baby, she became suddenly ill. She had dysphagia, cough, polyuria, an alteration of the voice and a capricious humor; later she had complete aphonia, progressive paralysis of the limbs, diminution of cutaneous sensibility, but no muscular atrophy. The exhibition of nux vomica caused clonic convulsions. The animal was killed, but no lesion of the nervous centres was discovered. The second case was a fat, intelligent and affectionate dog, eleven years old, who was attacked with a convulsion without loss of consciousness, on receiving a sharp reprimand from his master. From that time the attacks recurred whenever his master entered the house, replacing the usual manifestations of joy. The third case was a terrier two years old, who a year before had had an attack of paraplegia of unknown nature. His mistress brought a bitch into the house as a companion, when he at once lost his habitual gayety and appetite. The sexual instinct was only slightly aroused and multiple

[1] Traité clinique et thérapeutique de l'hystérie, i, 122.
[2] Révue Scientifique, October 8, 1892.

paralytic troubles appeared, dysphagia, alteration of the voice, and progressive paraplegia with preservation of the functions of the bladder and rectum. Nux vomica gave rise to clonic convulsions in him also. He recovered very rapidly when separated from his companion.

Higier, of Warsaw,[1] has just reported two other observations which are of especial interest from the author's reputation as a neurologist and from the special study which he has made of hysteria and allied conditions and particularly hysteria of traumatic origin. The first case was a nine-months-old kitten belonging to one of Higier's patients which had always been healthy, playful and intelligent, although her mother had had clonic twitchings (chorea?) during pregnancy. Attacked by a dog, which bit her deeply in the back, she fell at once as if paralyzed, mewing piteously for several minutes. When seen by Higier five or six weeks later she walked only with the fore-paws, dragging the trunk and hind-paws after her. The hind-paws and the posterior third of the trunk were completely anesthetic to pain, touch and temperature. The tail was also paralyzed and the kitten could not express its feelings by wagging it in the usual manner. There was no muscular atrophy and no incontinence of urine or feces. Except for the absence of vesical and rectal paralysis the kitten was like one made paraplegic by section of the cord, and it was believed that the cord was actually injured. A few days later, however, the maid-servant threw the kitten down stairs to see if she would land on her feet like a healthy cat. The surprised kitten actually did land on all fours, ran away, and remained permanently cured of the paraplegia. The second case was in Higier's own canary bird. A cat jumped at the cage and knocked it down, apparently without touching the bird. The bird was found rigid on the floor of the cage, but was brought back to life by sprinkling with cold water. He was lively, ate readily, and showed no abnormality after this, but he was absolutely silent although previously he had been an excellent singer. This aphonia lasted six and a half weeks, and then he suddenly and unexpectedly began to trill as well as ever.

The development of the symptoms after a severe fright and the very sudden recovery in both these cases, and the paralysis with anesthesia, but without muscular atrophy or disturbance of the bladder and rectum, in the first case would, if the conditions were observed in man, render a diagnosis of hysteria most probable. Aruch's cases, also, must be classed in the same category, and the negative results of the autopsy afford a further confirmation of the diagnosis. That many animals are profoundly susceptible to reproach, shame, jealousy and fear is a well-accepted fact, and it is not improbable, and these cases seem to prove that with intelligent animals, as with man, psychical impressions may exert profound reaction in the somatic functions and excite an apparently typical group of hysterical symptoms.

[1] Neurologisches Centralblatt, July 1, 1898.

"MATERNITY AND GYNECOLOGICAL HOSPITALS."

THE above title well describes a certain class of institutions designed for the relief of suffering female humanity. Sometimes they are called "Maternity Homes," sometimes "State Sanitaria," but the sweet aroma of the service offered is the same, however the name may differ. This sort of home is prepared to receive women suffering from disorders peculiar to their sex, especially cases that are treated with difficulty in their own homes, and those seeking privacy in confinement. The utmost delicacy and absolute privacy are guaranteed. A home for the infant will be provided, should parents desire to part with it. A private carriage will await patients at the depot. A liberal commission will be allowed to the profession for any cases influenced; or, as these cases come through professional recommendation, it is at once a duty and a pleasure to set aside as compensation for such consultation fifteen or twenty per cent. of the fees received from patients thus recommended. When it is necessary from disease or other physiologically abnormal condition, or when from any other cause the life of the patient is imperilled, and special surgical interference for the induction of premature labor has been decided upon, long experience in the treatment of such cases, the simplicity and safety of the methods and the thorough course of antiseptic after-treatment, are absolute assurances of the most satisfactory results.

The announcements are skilfully worded and run more or less after the above fashion. One of these, emanating from a large Western city, was recently sent us by a colleague to whom it had been addressed, with the remark: "Thus are things done in the wild and woolly West." But some things are done in some places as well as in others.

It so happened that there was lying by us a similar circular from the second largest city in the world, and still another originating in a city of no mean size particularly near home. This last had been sent us by the outraged recipient, a medical practitioner in the State of Maine, signing himself "Country Doctor." "Country Doctor" had read his double-barrelled circular carefully, and deduced therefrom this: "The advertisers ask you to send all the cases you can for them to commit abortion upon and state that they will give the sender twenty per cent. of the profit of their hellish work. Probably you can find out at the State House what sort of a license these worthies have." For the benefit of the rest of the profession, for the protection of the innocent unborn and for the fair name of our State, "Country Doctor" asks us to publish this literature in full, italics and all, and send a copy thereof to the authors, and another to the State and city police.

We wish we were sure that a good end and the cause of justice would be thus served. This sort of thing exists in most of our large cities, and we fear it flourishes through the weakness of mortal nature,

but not through the "consultations" of honest practitioners of medicine.

What the police require is testimony, not literature, and convicting testimony is not easily come by.

WAR IN ITS EFFECT UPON THE NERVOUS SYSTEM.

In a recent editorial, entitled "The Shock and Stress of War," the *Philadelphia Medical Journal* adopts essentially the point of view taken in our editorial of April 14th, on "The Accident Neuroses of War," and in a subsequent paper by Dr. Morton Prince. Of great interest is this statement made by the writer: "A lieutenant in the United States Navy, who was watch-officer on the ill-fated battleship *Maine* on the night she was blown up in Havana harbor, has just been taken to an asylum for mental and nervous disorder caused by the shock and strain of that great disaster. We have no details by which to judge of the exact condition of this unfortunate officer, so we do not know whether any other factor has acted as a cause of his malady; but his case probably confirms the suspicion which we have had all along, that the tragedy of the *Maine* would possibly leave a long train of nervous disorders for some of the men who shared in it."

The writer further discusses the differences in the conditions which prevailed on the *Maine*, with the appalling suddenness of her destruction, and those in the *Texas* after the conflict with Cervera. The strain of conflict, with the incessant noise from the guns in action, may well have had its effect upon the nervous systems of the participants, and yet it is easy to conceive how much less of a shock this would produce than the suddenness of such a disaster as befell the *Maine*.

As we before pointed out, there is much to be learned from a study of the conditions of a modern battle, whether upon sea or land, and we have no doubt that with a medical corps more competent than ever before some observations of importance will be made.

MEDICAL NOTES.

EMPEROR WILLIAM'S DONATION. — Emperor William, of Germany, is said to have given 10,000 marks to the Red Cross Society, for the benefit of wounded Spanish and American soldiers.

UNIVERSITY OF DENVER, MEDICAL DEPARTMENT. — The following additions have recently been made to the Faculty: Dr. Carroll E. Edson, Professor of Therapeutics; Dr. Hobart E. Warren, Associate Professor of Anatomy in charge of the Department; Dr. T. J. Gallaher, Professor of Laryngology and Rhinology; and Dr. I. B. Perkins, Clinical Professor of Gynecology.

GERMAN CONGRESS OF SCIENTISTS AND MEDICAL MEN. — Announcement is made that at the Congress to be held in Düsseldorf, from September 19th to 24th, there will be four exhibitions. One will illustrate the history of medicine and science; the second the services rendered by photography in scientific investigations; the third, new instruments and apparatus pertaining to medicine and science; and the fourth, apparatus for teaching physics and chemistry.

FORTHCOMING MEDICAL CONGRESSES. — A proposal has been made by the Bombay Medical and Physical Society to hold a congress at Bombay at the beginning of the winter to make a thorough study of the plague. The Ninth Congress of French Alienists and Neurologists will open at Angiers on August 1st, under the presidency of Dr. Mottet. The Fourth French Congress for the Study of Tuberculosis, from the 27th of July to the 1st of August, under the presidency of Professor Nocard.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The twenty-fourth annual meeting of the Mississippi Valley Medical Association will be held at Nashville, Tenn., October 11th to 14th, under the presidency of Dr. John Young Brown, of St. Louis, Mo. The annual addresses will be made by Dr. Jas. T. Whittaker, of Cincinnati, on Medicine, and by Dr. Geo. Ben Johnson, of Richmond, Va., on Surgery. Titles of papers may be sent to the Secretary, Dr. Henry E. Tuley, 111 West Kentucky Street, Louisville, Ky.

MORE TYPHOID CASES AT CAMP ALGER. — It is reported that typhoid fever has made its appearance among the Rhode Island men at Camp Alger, three cases having been announced from the 2d division hospital as coming from their regiment. These cases are treated at Fort Myer, where the hospital equipment is, no doubt, amply sufficient to treat the disease. The reported occurrence of cases is said to be due, in great measure, to the carelessness of the men, who expose themselves in various ways to the contagion.

ONLY TRAINED NURSES WANTED. — According to the *Medical Record*, so many applications have been received from women who have had little or no experience in nursing, that the officials of the Red Cross Society in New York have issued a notice that only professional nurses in sound health are wanted or can be accepted. The service required is of the most exacting kind, and consequently a good physique is as necessary as are professional training and experience.

WOUNDS OF MAUSER BULLETS. — Surgeon-Major Kimball, on charge of the Army Hospital at Governor's Island, N. Y., is reported to have said that the wounded soldiers under his charge were doing well, and that many were being sent to their homes. This he attributed, in great measure, to the character of the wound made by the Mauser bullet, and asserted that the percentage of recoveries would have been decidedly less had the wounds been inflicted, for example, by the old Springfield rifle. The further statement made, that one soldier who had been shot through both lungs, apart from a slight cough, was apparently all right, we may take with a certain degree of reservation.

YELLOW FEVER IN CUBA. — The reports, without exception, seem to show that what yellow fever there may be in and about Santiago is well in hand, and on the whole, is diminishing. If present conditions are continued, it is safe to say that this much talked of menace to our troops has been greatly exaggerated. General Shafter reports six deaths from yellow fever in the hospital at Siboney, but none from the front. About 1,500 are sick with fever but of these only about 150 have yellow fever. The suggestion which has been made of at once improving the drainage of Santiago, should undoubtedly be carried out, whatever the general health of the inhabitants may be. Precautions of the most rigid sort are being taken to prevent the introduction of yellow fever into our southern ports. The suspicion of its appearance at Fort Monroe has not yet been confirmed, but a quarantine will be at once established should the fever actually break out. It is said that quarantine officials have refused to permit wounded soldiers to land at Old Point Comfort for fear of yellow fever.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, July 27, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 26, scarlet fever 14, measles 30, typhoid fever 9.

RECENT APPOINTMENTS. — Dr. Sidney A. Lord has been appointed assistant physician in the Neurological Department of the Massachusetts General Hospital.

SAILING OF THE "BAY STATE." — There seems to be no question that the hospital ship *Bay State* will be ready for sea on the date specified, August 1st. The work on her is going forward well, and is being pushed night and day and Sundays. The ice plant has arrived and was unloaded at the wharf, and this will be installed soon, as the lower hold of the ship, where it is to go, has had a great deal of work done on it, and is about ready to receive all the fittings.

NEW YORK.

ARRIVAL OF THE "SENECA." — The United States transport *Seneca* arrived on July 20th from Siboney, Cuba, with ninety-nine sick and wounded soldiers, together with about fifty other passengers. The *Seneca* is not a hospital ship, and, through somebody's blunder, she was sent off in a filthy condition, without medical stores or surgical appliances, without a proper food supply, without ice, and with even an inadequate supply of water. No army surgeon was detailed for the vessel, and the men suffered very greatly for the lack of suitable accommodations on the voyage. By chance, as it seems, there were two physicians on board, Drs. Hicks and Bird, and they, together with a single Red Cross nurse, Miss Jennings, devoted themselves assiduously to the care of the patients. When the vessel first arrived in port it was feared that some of the men might be suffering from yellow fever, but the Health Officer, Dr. Doty, kept them under observation long enough to determine that there was nothing more serious than malarial fever on board. As soon as practicable, the wounded among the sufferers were taken to Bellevue Hospital for treatment.

SAILING OF THE "RESOLUTE." — On July 19th the steamer *Resolute*, formerly the *Yorktown* of the Old Dominion Line, sailed for Santiago with a large quantity of medical stores and a considerable number of immunes for hospital service. There were seventy-three male nurses (most of them from New Orleans), ten women nurses and a staff of ten physicians under the direction of Major William H. Arthur.

THE "RELIEF" ARRIVES. — The regular army hospital ship *Relief*, under command of Major G. H. Torney, Surgeon U. S. Army, arrived in port from Siboney on July 23d, with 125 sick and wounded soldiers, two of the 127 with which she started having died on the voyage. It had been just three weeks since she sailed from New York perfectly appointed for the purpose for which she was designed, and on her return she presented a total and very pleasing contrast to the demoralized *Seneca*, her appearance being as neat and her equipment for medical and surgical service as complete as the most up-to-date city hospital. During the trip of the *Relief*, Dr. Torney states, she received in all 265 patients, of whom 13 died.

DEATH FROM TETANUS. — A lad, ten years of age, has just died in Brooklyn of lockjaw, whose life might possibly have been saved if the use of tetanus antitoxin serum could have been applied more promptly. Dr. Philip Brennan was called to the case on Sunday, July 17th, and immediately sending to the bacteriological bureau of the Health Department in Manhattan Borough, was informed that no serum was procurable there on Sunday. Certainly this is a state of affairs that should at once be remedied, for while it is of course by no means positive that the case would not have terminated fatally under any circumstances, there would have been, at least, a better chance of success if the antitoxin could have been used twenty-four hours earlier than it was.

TREATMENT OF PATIENTS ON THE "RELIEF." — All of the patients on board the hospital ship *Relief*, were enthusiastic in their praise of the treatment they had received from the surgical staff and the trained nurses. A number of the latter were picked men from Bellevue Hospital, and their excellent work was efficiently supplemented by the kind offices of six Red Cross women nurses. During the trip there were thirteen major operations performed by Dr. Torney and his assistants, with the result of ten recoveries and three deaths. The various modern "plants" with which the vessel was supplied contributed marvellously to the comfort and welfare of

the sick and wounded soldiers. These included a distilling apparatus providing 2,000 gallons of fresh water a day, a carbonator for the manufacture of effervescent mineral waters, two sterilising plants, and a disinfector. As to the great ice plant, making two tons of ice a day, in the language of one of the hospital stewards, it was worth its weight in gold. When the *Relief* was at Siboney, as much ice as could possibly be spared was sent on shore, and the donors had the satisfaction of learning that it was instrumental in saving the eyesight of two men, one a captain and the other a private who had gunshot wounds near the eyes. Mention should also be made of the admirable work accomplished by means of the two x-ray apparatuses with which the ship was provided. These were under the charge of Dr. W. M. Grey, who took no less than 75 radiographs, many of which were of the greatest possible service in locating bullets, and these are all to be sent on to Washington for permanent preservation. In one remarkable case the man was struck in the right elbow, after which the ball passed entirely across the chest and finally lodged in the left forearm, where it was readily located by the apparatus.

Miscellany.

DIAGNOSIS OF GASTROPTOSIS.

Dr. A. Symons Eccles offers a valuable paper on this subject in a recent number of the *West London Medical Journal*. It is a matter which has of late attracted a large share of attention, and it is desirable that as many carefully reported cases as possible be put on record, that we may arrive at a just conception of its true significance in relation to other disturbances, notably those occurring in the nervous system.

Dr. Eccles alludes to twenty-seven patients of whom eight were males and nineteen females. The ages of the men ranged from thirty-two to sixty-one years, while of the nineteen females the eldest was forty-five and the youngest nine. In three other males and six other females nephroptosis was coexistent, eight of the right kidney and one of the left. Methods of examination are varied and somewhat complicated. The more important points we reproduce in the writer's words:

"Inspection in different attitudes, palpation in the recumbent, tilted up, lateral and erect postures, and sometimes in the prone position, or with the patient resting on the hands and knees; then percussion both direct, without the intervention of the passive finger and with it, has appeared to me to be more useful than so cautious an observer as Prof. Clifford Allbutt seems to have found it. Again, I believe that auscultо-palpation has been very instructive to me in confirming the diagnosis of visceral displacements and dimensions. While the stethoscope is poised lightly on the abdominal wall, I use both hands to palpate, press on, or stroke the abdominal and hypochondriac walls, and I rarely find that the dimensions mapped out by this plan are not confirmed by percussion and *vice versa*. Moreover, to test the accuracy of the ear, I often shut my eyes so that I cannot see the marks already made by the flesh pencil as the result of one or other of the means employed. Tapping lightly, very gently indeed with the tip of the semi-flexed finger in a somewhat staccato fashion, is also a favorite practice of mine in examining the abdomen.

"If then, I were asked, What are the physical signs and symptoms of gastroptosis? I should say that on inspection in the recumbent position the natural convexity of the epigastric region was lost, and in place thereof there is a marked concavity between the costo-chondral arches from the xiphoid cartilage almost as low down as the navel, sometimes below this point; there may also be a median sulcus intensified above by the narrowing of the space between the right and left rib cartilages, its shape being more that of an inverted Y than an inverted V. The whole abdomen may be more or less flattened, with bulging of the flanks; and in the erect posture the depression over the epigastric region is still more marked, while the umbilical and especially the hypogastric regions are unduly prominent, but not so distinctly pendulous as in cases of general enteroptosis."

THE SEASONS AT MANILA.

The seasons at Manila, according to *Science*, are described by the Spaniards as six months of mud, six months of dust and six months of everything. *Science* goes on to say: "There is much confusion in the public mind just now as to the question of the health of North American troops during a temporary sojourn in the Philippines, and also as to the larger question of possible acclimatization of our people in those islands, in case of permanent occupation. No definite answers can be given to these two questions, but in their consideration three things may well be borne in mind. First: By means of a strict observance of hygienic principles, the death-rate among foreigners in a tropical country can be very much reduced. This has been nowhere better shown than in the case of the British troops in India and of the French troops in Cochin-China. Second: The great majority of the best authorities are agreed that complete acclimatization of Europeans (and hence, we may add, of North Americans) in the tropics is impossible. By exercising the greatest care, they may *live* in tropical countries, but, as has been well said by a recent writer, to tolerate a climate is one thing; to be independent of it is quite another. Third: The Anglo-Saxons are universally acknowledged to be the least fitted, the Mediterranean nations the best fitted, to colonize in the tropics."

Correspondence.

THE SECRETARY OPHTHALMOLOGICAL SECTION, AMERICAN MEDICAL ASSOCIATION.

15 Arlington St., Boston, July 22, 1898.

Mr. Editor: — In your issue of yesterday, page 73, I notice you state that my brother, Dr. F. H. Williams, was made Secretary of the Section on Ophthalmology; it should have been Dr. C. H. Williams. I was present at the Denver meeting, read a short paper in the Ophthalmological Section and was elected secretary for the next meeting of the Section.

A correction of your notice will help me in arranging the work of the Section for the next year.

Very truly yours,

Chas. H. Williams, M.D.

METEOROLOGICAL RECORD

For the week ending July 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	6.00 A. M.	6.00 P. M.	Daily mean.	6.00 A. M.	6.00 P. M.	6.00 A. M.	6.00 P. M.	6.00 A. M.	6.00 P. M.	
S...10	29.92	62	68	56	65	83	74	N.	E.	5	8	C.	F.	
M..11	30.22	60	66	55	69	69	69	N.	S.E.	4	4	C.	O.	
T...12	30.47	61	65	57	66	73	70	N.E.	N.E.	18	7	O.	O.	
W..13	30.48	55	60	57	100	100	100	N.E.	N.	13	22	R.	R.	2.24
T...14	30.08	72	85	58	90	74	82	W.	S.W.	3	14	C.	C.	.02
F...15	29.82	76	86	69	78	90	84	W.	N.	10	9	C.	C.	
S...16	29.92	74	84	63	59	39	49	N.W.	N.	10	9	C.	C.	
														2.26

* C., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thunderstorm; N., snow. † Indicates trace of rainfall. Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 16, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping-cough.	Diphtheria and croup.
New York . .	3,438,899	1419	803	30.10	9.38	23.10	2.45	1.82
Chicago . .	1,812,228	—	—	—	—	—	—	—
Philadelphia .	1,214,256	—	—	—	—	—	—	—
St. Louis . .	570,000	—	—	—	—	—	—	—
Baltimore . .	550,000	248	139	35.20	7.60	28 20	.80	6.00
Boston . . .	517,732	192	42	3.64	17.68	2.08	—	1.04
Cincinnati . .	405,000	117	—	17.00	11.05	12.78	—	1.70
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	285,000	—	—	—	—	—	—	—
Washington . .	277,000	110	36	20.93	13.65	14.56	—	1.82
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	54	27	33.30	9.25	22 60	3.70	—
Worcester . .	105,000	20	12	35.00	—	25.00	—	5.00
Fall River . .	96,919	—	—	—	—	—	—	—
Nashville . .	87,754	29	10	17.25	17.25	17.25	—	—
Lowell . . .	87,193	44	30	50.00	6.81	45.40	2.27	—
Cambridge . .	86,812	27	12	25.90	7.40	25.90	—	—
Lynn . . .	68,220	—	—	—	—	—	—	—
Charleston . .	65,165	—	—	—	—	—	—	—
New Bedford .	62,416	22	11	33.30	4.15	24.90	—	4.15
Somerville . .	57,977	—	—	—	—	—	—	—
Lawrence . .	55,510	—	—	—	—	—	—	—
Springfield . .	54,790	16	8	31.25	12.50	31.25	—	—
Holyoke . . .	47,884	19	13	57.86	10.52	57.86	—	—
Salem . . .	36,062	6	2	—	33.33	—	—	—
Brockton . .	35,853	6	1	—	—	—	—	—
Malden . . .	32,894	10	3	10.00	—	—	10.00	—
Chelsea . . .	32,716	8	0	—	37.50	—	—	—
Haverhill . .	31,406	9	5	11.11	11.11	11.11	—	—
Gloucester . .	29,715	—	—	—	—	—	—	—
Newton . . .	28,980	—	—	—	—	—	—	—
Fitchburg . .	28,392	3	1	—	—	—	—	—
Taunton . . .	27,812	8	3	12.50	—	12.50	—	—
Quincy . . .	22,562	3	1	—	—	—	—	—
Pittsfield . .	21,921	—	—	—	—	—	—	—
Waltham . . .	21,812	3	1	—	—	—	—	—
Everett . . .	21,575	4	1	—	—	—	—	—
North Adams .	19,135	4	0	—	—	—	—	—
Northampton .	17,448	—	—	—	—	—	—	—
Chicopee . .	17,262	12	5	25.00	—	25.00	—	—
Brookline . .	16,164	4	2	25.00	—	—	25.00	—
Medford . . .	15,832	2	2	—	—	—	—	—

Deaths reported 2,409: under five years of age 1,173; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 759, consumption 252, acute lung diseases 162, diarrheal diseases 513, diphtheria and croup 49, whooping-cough 42, typhoid fever 15, cerebro-spinal meningitis 14, measles 12, scarlet fever 11, erysipelas 3.

From typhoid fever New York and Washington 4 each, Baltimore and Cincinnati 3 each, Boston 1. From cerebro-spinal meningitis New York 12, Baltimore and New Bedford 1 each. From measles New York 10, Washington and Worcester 1 each. From scarlet fever New York 11. From erysipelas New York 2, Lowell 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending July 9th, the death-rate was 16.7. Deaths reported 3,154; acute diseases of the respiratory organs (London) 160, whooping-cough 99, diarrhœa 68, measles 67, diphtheria 48, scarlet fever 28, fever 22.

The death-rates ranged from 9.4 in Cardiff to 21.4 in Sunderland; Birmingham 15.1, Bradford 14.1, Gateshead 18.1, Hull 14.3, Leeds 16.8, Liverpool 17.3, London 14.3, Manchester 17.0, Newcastle-on-Tyne 20.3, Nottingham 11.5, Sheffield 16.1, West Ham 16.6.

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Original Articles.

SOME PRACTICAL POINTS IN THE ANATOMY OF THE FOOT.

R. W. LOVETT, M.D., AND F. J. COTTON, M.D., BOSTON.

THE aim of the present paper is to study the conditions met with in the pronated foot as distinguished from the flat-foot. By pronation is meant that vicious attitude of the foot in which, in habitual standing position, it rolls over inward, the inner malleolus projects and abduction of the front part of the foot occurs. Up to a certain limit, which has not been correctly determined, this movement occurs in the normal foot; beyond this limit it must be regarded as pathological, and is likely to be attended by symptoms of pain and disability. Correction active or passive to normal position is usually easy in the milder cases, and the foot after being corrected shows no flattening of the arch, though the symptoms complained of may even be identical with those of flat-foot.

This class of cases is referred to also as weak foot;[1] in children the condition is commonly called weak ankles. The distinction between it and flat-foot is, however, often imperfectly appreciated.

The pathological alterations in advanced flat-foot have been carefully established by a number of dissections of such cases,[2] and there seems to be fair agreement between authors as to the actual changes, except in regard to the stretching of the calcaneo-scaphoid ligament. The mechanism of production has had many different interpretations. It is probably to be accepted, v. Meyer to the contrary notwithstanding, that the calcaneo-scaphoid ligament is stretched, at least usually. As to the theories of mechanism, the most plausible are those of Lorenz and v. Meyer. Both recognize the early pronated position, but, while v. Meyer believes that pronation goes on to flattening, Lorenz assumes that the outer arch, on which, according to his scheme, the inner arch rests, must break down before the inner arch slides off it downward and inward.

This classification of the production of flat-foot is of interest in the present connection only in so far as the study of less severe cases of static disorders of the foot may throw light on the mechanism which causes the severer cases. Theoretical considerations alone have failed to do this satisfactorily.

What interests us at present, however, is the determination of the actual anatomical conditions in the less severe forms of static disorders, and a study of their causes, avoidance and treatment. Such cases are, in this community at least, far commoner than fully developed flat-foot, yet most writers seem to fail to recognize them as forming a distinct class, and even when they have been so recognized, the pathology has not been worked out.

This investigation was undertaken by the writers in a spirit of inquiry. They had no theory to prove, and, after observing clinical facts, they passed to anatomical studies, for opportunity for which they are indebted to Prof. Thomas Dwight of the Harvard Medical School.

In contrast to the word pronation the word supination will be used here to designate the corrected position of the foot in which, by the influence of voluntary muscular contraction, the foot is placed with its outer border touching the ground, in its normal relation to the leg, and the inner malleolus not unduly prominent. Supination is a position of active muscular control and strength. Pronation is the position of ligamentous contrasted with muscular support, and is the position of weakness (Fig. 1).

It was first sought to determine whether pathological and physiological pronation are identical in the site and direction of the movement, to compare the range of movement in the two cases, and to determine



FIG. 1. — Pronation (from photograph). Position of correction shown in broken line.

whether the functionally imperfect feet studied showed any bony or other permanent change.

For this purpose cases were selected with unserviceable feet, with more or less abnormal standing position, other cases without symptoms but of the same general appearance, other sufficiently good feet with a wide range of movement in the standing position, and others which must be classed as approximately normal. In all some sixty cases were studied.

X-RAYS.

The first method of study was with the X-ray. Photographs were taken of 11 cases of normal and pronated feet, and, for comparison, of three flat-feet with marked, two of them with extreme, bony change. The feet were photographed in two or three directions, from the inside, from above, and from the outside;

[1] Whitman: New York Medical Journal, November, 1895. Lovett: Transactions American Orthopedic Association, viii, 75. Dane: Ibid, 1897. Lovett and Dane: New York Medical Journal, March, 1898.

[2] Dittel, cited by Albert: Wien. med. Presse, 1891, p. 49. Hueter: Langenbeck's Arch., 1862, iv, 466. Henke: Zeschr. f. ration. Med., 1859. V. Meyer: Entsteh. des Plattfusses, 1883. Lorenz: Plattfuss, Stuttgart, 1883. Symington: Journ. Anat., 1884, xix, 63. Chaput: Progrès Méd., 1886, xiv, 857. Humphrey: Lancet, 1886, i, 609. Stokes: British Medical Journal, 1894, ii, 1294. Kennedy: Glasgow Medical Journal, 1894, xlii, 193.

where correction was possible, the same foot was photographed in the two positions of supination and pronation. In photographing the two positions the foot was allowed to sink or was corrected to the required position, and a fresh plate was adjusted and exposed in the same place, neither the sole of the foot nor the tube being moved. In all cases a definite measured distance of the tube from the plate was used, and the foot was placed in constant relation to both. For the lateral views the tube was placed at the height of the astragalus; for the views from above, the centre of the tube was placed directly over the centre of the front edge of the plate. The views were taken with the foot in a position of slight toeing-out, and as nearly as possible with each foot bearing an equal part of the body weight.

In this way there was obtained a series of negatives in which the error of distortion seems to have been reduced to a mimimum, for whatever distortion was present, under this constant relation of distance and angle, must be approximately reproduced in each and every plate. The plates were compared by overlaying accurate tracings of the negatives, a method which proved much more serviceable than the use of prints, or of the negatives themselves; 44 negatives were taken of which 41 proved available for comparisons. The study of the series showed:

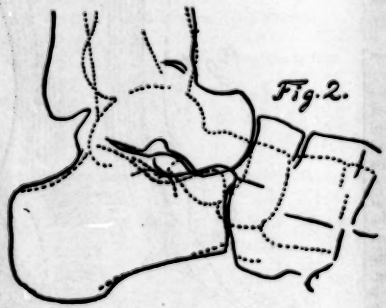
(1) Save in the cases of advanced flat-foot, which showed the changes described as classical and developed nothing new (see Figs. 5 and 6), — save for these, none of the cases showed appreciable bony change. The individual variations in shape and relation of the bones were considerable, especially as regards the angle with the horizontal of the long axis of the calcis, but a study of many sets of dry bones, examined in this connection, convinced us that the variations seen in the negatives fell within the normal limit (Figs. 2 and 3).

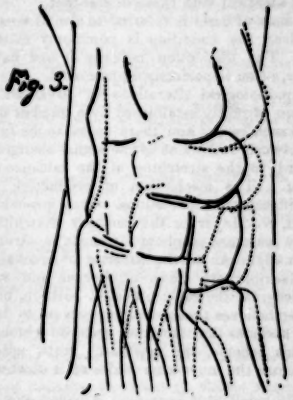
To this there is one exception. In feet which are habitually considerably pronated, whether functionally intact or not, there seems to be some prolongation upward of the anterior surface of the astragalus, showing in the corrected position as a rise behind the scaphoid.

(2) No distinction can be drawn between the relation of bones in the painfully pronated foot and that of the relatively normal foot when allowed to pronate: nor between the normal standing position of supination and that which may be temporarily assumed in correction by feet which are habitually pronated (compare Figs. 2, 3 and 4). The range of movement is very variable, but it seems to have no definite relation to the presence of symptoms, to the usefulness of the foot, or to the position assumed in ordinary standing.

(3) The movement of pronation consists in the following changes of position:

(*a*) The foot as a whole rotates beneath the astragalus toward the position of valgus. This is seen on the x-ray plate of the lateral view by comparison of the relations, in the two positions, of scaphoid and cuboid, and is also obvious in the view from above. The valgus rotation of the calcis is best seen in side view by comparison of the relative positions of the sustentaculum tali and the line of the upper surface of the calcis. The maximum extent of rotation (between pronation and supination, in standing) was in one case about 14 degrees. This was readily determined by setting up dry bones to correspond to the positions indicated by the tracings. The valgus rotation of the front foot seemed to be somewhat more than that of the calcis, but could not be accurately estimated in degrees.





Figs. 2 and 3. — A painful pronated foot (X-ray tracing). Dotted line shows standing position, — full line that of voluntary correction.

(*b*) The astragalus so rotates in pronation that its head moves inward and backward, its body and outer portion outward and forward. This is obvious in the bone itself, and is accompanied by the very obvious change in position of the malleoli which, of course, move with it in this rotation, the inner malleolus backward and the outer forward. There is at the same time a plantar flexion of the astragalus by which its head sinks towards the sole.[1]

(*c*) There is some movement outward of the cuboid on the calcis, hard to estimate accurately by the x-ray on account of the irregular contours of the bones.

(*d*) Associated with this is a movement outward of

[1] All these movements have been recognized and described as occurring in the movements of the normal foot, but not for the "pronated foot." v. Meyer: Statik u. Mechanik des menschl. Fusses. Golebiewski: Ztschr. f. orth. Ch., 1894, iii, 243.

the front foot, taking place between the scaphoid and the astragalus, by which the head of the astragalus, rotating inward, is in part exposed.

(*e*) Anterior to this point no change of relation of the bones is to be made out, the whole front foot, including scaphoid and cuboid, moving essentially *en masse*.

Neither in extent or direction or site of these movements does there seem to be any constant difference between the movements of the relatively normal and the pathologically pronated foot.

ANATOMICAL DATA.

The results of the x-ray studies were checked by anatomical observations, not only of dry bones, but of the cadaver in various stages of dissection. The material placed at our disposal by Dr. Thomas Dwight did not consist, it may be said, of dry or drying specimens, but of either alcoholic specimens of ligamentous dissections, or of dissections of relatively fresh cadavers, moistened to a practically normal flexibility. To determine the movement of the bones one upon the other, long pins were driven into each of the various bones, and with the foot bearing weight the positions of pronation and supination were produced. The movements of the free ends of the pins gave a correct means of determining the movements taking place between the bones, and a very close correspondence in detail was found with the results of the x-ray photographs. Only in one respect was there a difference worthy of note; in the cadaver less valgus rotation of the calcis and more motion between the cuboid and os calcis were found under similar conditions of pronation than the x-ray photographs had led us to expect. Whether this means a laxity of ligaments in cases which show free valgus rotation of the os calcis is not certain. It must be remembered that there is great individual variation in the shape of the os calcis and in the relation of its long axis to the ground, hence, even apart from the variations in form of the joint surfaces (which are marked), there must be a different proportion between the horizontal and vertical components of rotation as affected by these variations; that is, where the posterior joint between astragalus and calcis is naturally nearly horizontal, pronation will consist more largely in abduction than in valgus rotation of the calcis beneath the astragalus. This is the probable explanation of the differences noted in different feet, and is important, inasmuch as it shows that measurements of the valgus rotation of the calcis alone cannot give a just estimate of the movement in pronation.

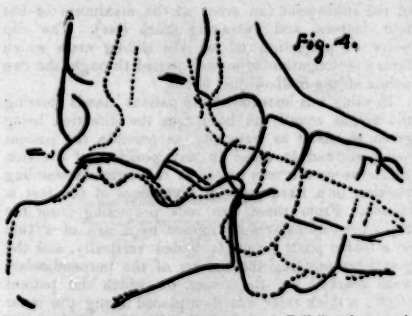


FIG. 4. A very mobile foot. No symptoms. Full line shows position of supination, dotted line that of voluntary pronation.

The abduction of the front foot is not directly dependent on the rotation of the calcis, but rather upon the horizontal rotation of the astragalus. The head of the astragalus, which is roughly spherical, moves in a ball-and-socket joint formed by the sustentaculum tali, the calcaneo-scaphoid ligament and the scaphoid. This allows of free movement, but the relations of surface are such that an inward rotation of the head of the astragalus (when the foot is under weight) determines an outward movement of the scaphoid swinging on the calcaneo-scaphoid ligament. Conversely, if the relation of the scaphoid to the calcis is fixed, with the foot bearing weight, no inward rotation of the astragalus is possible. It is in this way rather than by supporting the head of the astragalus directly, as is sometimes stated, that the tibialis posticus prevents pronation. This may readily be shown in the cadaver by nailing the tendon of this muscle to the tibia, when pronation is checked. Conversely, in some specimens where the muscles and tendons are intact, pronation is limited by this muscle, and if its tendon be cut or slipped from its groove, pronation to a much greater extent is possible.



FIG. 5. Rigid flat-foot.

This somewhat complicated relation between astragalus, scaphoid and ligaments also determines the mechanism by which the front part of the foot-sole is kept flat to the ground. As the foot is supinated, there is a movement downward of the scaphoid over the head of the astragalus as well as the movement inward just described. When the foot is rolled outward in supination, this plantar flexion of scaphoid, cuneiform and inner metatarsals acts to compensate, and the inner side of the ball of the foot still remains in contact with the ground. This compensation has a practical bearing and will be referred to later.

It is to be noted that the astragalus has no muscular insertions and acts simply as a transmitter, and the sole transmitter, of the body weight. Once movement of the astragalus is permitted by the muscles, its movements and the movements of the tarsal bones beneath it are determined only by the relations of the joint surfaces — though ligaments may limit their extent.

With the scaphoid in its movement in pronation-outlined above, the whole front foot moves in abduction, the scaphoid, cuneiforms and cuboid moving substantially *en masse*. The cuboid movement on the os calcis is limited by the play of a process on its poste-

rior articular surface with a corresponding groove on the calcis. The movement in pronation is outward on the calcis with a slight twist up of the outer edge of the cuboid.

To sum up, the movements of pronation consist of the horizontal rotation of the astragalus with the sinking of its head, the rotation in valgus of the calcis beneath it, and the rotation in valgus and abduction of the front foot as a whole, occurring between astragalus and scaphoid, calcis and cuboid.

The practical immobility of the front foot itself under weight, noted in the x-ray views of abnormal and relatively normal feet, proved true also on the cadaver. Movement between the bones of the front foot is permitted in the direction of plantar flexion when the foot hangs free, and no doubt active plantar flexion, through muscular contraction, must help in the accommodation of the sole to any surface, even under weight, but in the passive weight-bearing position on even ground the bones seem to be practically locked together by the action of the plantar ligaments, holding together joint surfaces which are not constructed to allow lateral movement. This locking is not absolute, except perhaps for the third metatarsal, but the range of movement between these bones in weight bearing is, we think, far less than seems to

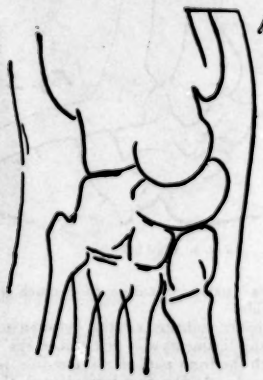


FIG. 6. Rigid flat-foot.

be usually supposed. Interesting in this connection is the fact that, as plates of dissections show, the bony changes even in advanced static flat-foot involve the cuneiform and metatarsals hardly at all. This would seem to indicate the relative strength of this portion of the foot.

MEASUREMENT OF THE ROTATION OF THE ASTRAGALUS.

In order to have some definite measure of the amount of anatomical pronation, the measurement of the horizontal rotation of the malleoli was fixed upon.[4] The astragalus being firmly fixed in the malleolar mortise, so far as lateral motion goes, the malleoli take part in the horizontal excursion of the astragalus, which is an essential element in pronation. As to the accuracy of this measurement as a measurement of pronation, it can be said that pronation is invariably accompanied by rotation of the astragalus, and increased pronation by increased rotation in what seems to be a constant ratio. The measurement has been carefully and repeatedly tested, not only clinically, but on the cadaver and on ligamentous dissections as well; and it seems that, while it is not an accurate measurement of the valgus rotation of the calcis, yet, giving as it does an index of the abduction of the front foot (which has been shown above to bear a relation to the horizontal rotation of the astragalus as such), it is a fairly accurate measure of the pronation of the foot as a whole, though not mathematically accurate, as no measure of pronation can be.

This rotation we have measured as follows: A clip was constructed with sliding arms to grasp the external malleolus at its back edge, the internal at its prominent anterior portion. (See Fig. 7.) These are the only anatomical points which are constantly available clinically, and proved on examination of cadavers to bear a very constant relation to the axis of the ankle-joint (an error at the maximum of but four degrees, and averaging much less). The clip bears two projecting rods on the sliding arms which form a prolongation of a line passed through the two points on the malleoli just noted.

In using this instrument the patient stands bearing the weight equally on both feet, the direction being given to stand as naturally as possible, the patient being allowed to stand in any position of eversion which he or she may select as the ordinary standing position, or a fixed angle of divergence of the feet is chosen. From these two rods projecting from the clip a perpendicular was dropped by means of a rule or a folded piece of paper folded vertically, and the points representing the bottom of the perpendiculars were marked on the paper on which the patient stood; a thick ruler was then placed along the inner side of the patient's foot and a line drawn along it; the foot was then removed from the paper and the two points representing the perpendiculars from the rods were connected by a line, and the angle made by the two lines was measured (Angle ABC Fig. 7). The error of the actual measurement proved very small, a matter of a couple of degrees or less.

This measurement gives, of course, at best, simply the measurement of pronation in such feet as are without much bony change — the more usual condition. In flat-foot proper it can only be a measure of the position of the astragalus, and not a true measure of pronation.

This angle with its variations was studied in 119 measurements on 51 cases (beside measurements on 14 undissected cadavers). In this series we find:

(*a*) The angle varies in natural standing from 46° to 73°.

(*b*) In people with the better class of feet it is below 60°.

(*c*) The normal we should set at about 50°.

(*d*) People with painful feet are likely to have a higher angle, 60° or 70°.

(*e*) Competent feet show an appreciable, often a considerable, increase of the angle, over that of ordinary standing, when the foot is voluntarily allowed to roll inward; it may be said that they have a reserve of pronation.

[4] The attempt to use this rotation as a measure has been made before, but by less exact methods. Lovett: New York Medical Journal, June, 1895. Dane: Loc. cit.

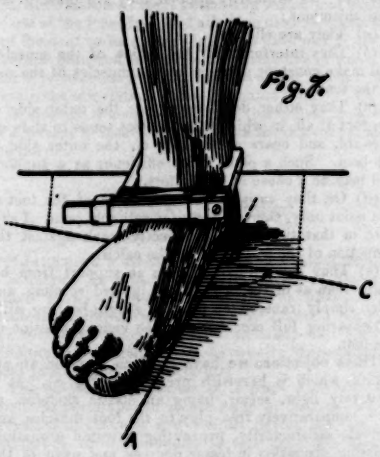
(*f*) When there is no such reserve of pronation one is likely to find symptoms.

(*g*) The angle varies with position, being greater in the position of divergence of the feet when this divergence is over 30°. With the feet toeing-out at 90° this increase in the angle may be considerable.

(*h*) One finds feet which have a reserve of pronation when toeing-in or parallel — none when they toe-out. This condition also seems connected with the presence of symptoms.

(*i*) There is a curiously constant maximum of 71° to 73° in the cases measured by us, which would seem to indicate the anatomical limit of pronation; but dissected feet show individual maxima, determined by ligaments, which in some cases are several degrees less than this. The occurrence of this maximum angle is not necessarily a sign of an incompetent or weak foot, unless this angle represents the habitual standing position.

(*j*) Flat-feet proper, in the few cases we have measured, record about this same angle, 70° to 73°, whether they are of the fixed or the mobile type.



(*k*) The actual angle, though indicating the anatomical condition, is only a rough indication of the competency of a foot. A large angle indicates at most only a mechanical disadvantage in standing, and considerable pronation, shown by this as by the other measures, may exist in a foot which is not only painless but mechanically sufficient for the person's needs.

This measurement of angle is of most value in comparing the pronation in different positions of the same foot, or in comparing the two feet of an individual in the same position. However, though it is undoubtedly subject to some error, as all measurements of pronation must be, from the normal variation in the shape of the tarsal bones in different individuals, yet it appears to us the most accurate index of anatomical pronation yet proposed, and sufficiently accurate to be of definite value.

In a number of cases the relation of the internal malleolus to the weight-bearing areas was observed and measured. This was done by tracing these areas on the under side of a glass plate on which the patients stood, dropping a perpendicular from the internal malleolus to the glass, marking this point, tracing off the areas and the point so obtained, and measuring the distance from said point to a line joining the inner edge of the anterior and posterior areas of weight bearing. This distance must, of course, represent in some degree the mechanical competency of the foot as a passive support, or, conversely, the disadvantage to be overcome by muscular action, and that more accurately than v. Myer's triangle method, since the weight-bearing surfaces do not necessarily correspond to the anatomical landmarks. The scheme did not prove serviceable as an index, however; the measurement is too rough a one.

The old-fashioned smoked-paper imprints were taken in some cases, but were of use only in helping us class, according to older standards, the cases studied. The "flat-foot print" fails to differentiate between the fleshy padded, the edematous foot, and the flat foot, except in cases of advanced deformity, where mere inspection does as much. It equally confuses the lifted outer edge of many pronated feet and the naturally high arch; is, in short, practically nearly worthless. How worthless it is a recent paper by Dr. John Dane, in criticism of data previously accepted from imprints of children's feet, will clearly show.



Observations by the glass-plate method are open to objections similar to those urged against the imprint method, though its data are more readily controlled by the eye. Besides this it does give definite information as to the tiring reaction (that rolling inward of the foot which is sometimes to be seen after a few moments' standing in one position) and also enables one to judge not only of the areas of weight bearing but also of the relative distribution and amount of pressure.

By aid of this method it was possible to demonstrate in certain cases that correction of the foot back to approximately the normal standing position caused a considerable lifting of the inner edge of the anterior weight-bearing areas — producing a very abnormal outline.

In some cases which might be classed as pronated

feet, as well as in mobile flat-foot, this lifting of the inner edge, on correction of pronation, is readily appreciable without the aid of the glass plate. In view of the mechanism of adjustment of the sole to the ground, above described, it must mean either stretching of the calcaneo-scaphoid ligament, or else bony change. In either case it has a practical bearing, as showing greater strain on the muscles, if the patient tries to stand properly, and is theoretically important as serving to show that the inner side of the foot gives way first. It is worth noting that we have seen no evidence in our cases of early breaking down of the external arch in pronated feet, or in the intermediate stages. So far as they go, then, our data tend to confirm v. Meyer's theory of flat-foot production rather than that of Lorenz.

Before passing to treatment certain points may be emphasized of more direct interest from all this mass of detail.

(*a*) There is a frequent class of feet, often disabling, which have nothing in common with flat-foot, anatomically, save the pronation.

(*b*) This pronation involves no appreciable change in the bones or ligaments in the majority of cases, and correction of the vicious standing position gives a full anatomical correction. What determines the further progress toward flat-foot cannot be said. Hoffa and of late Nasse [4] are inclined to assume a yielding bony structure as at least a frequent cause.

Intermediate stages are seen, but the great class of pronated feet should be held separate clinically from flat-foot, especially in regard to prognosis of treatment.

(*c*) The occurrence of symptoms seems to depend essentially on the reaction to overstrain of ligaments and muscles, and is apparently the result of a degree of pronation such as to bring the burden of support for a great part or the whole of the day on the ligaments. This necessary degree of pronation varies widely, and would seem to be indicated not so much by the absolute degree of pronation as by the disappearance of the reserve of pronation. There is, of course, much individual difference of reaction, and certain cases seem to stand habitually with full strain on the ligaments, and do heavy work, yet have no symptoms.

(*d*) This reserve of pronation, which seems of some importance, may be accurately measured by the angle method proposed.

(*e*) The measurement of the angle gives a record of the anatomical pronation existing, and is of value in showing the mechanical disadvantage to be overcome by muscular correction, and for estimating the degree of support required, or the value in correction of a given supporting apparatus.

TREATMENT.

In the treatment of pronated foot the end aimed at is correction into that position of moderate supination which is normal in standing. The maintenance of this position is normally largely dependent on the muscles. If the patient can be induced to learn to be conscious of pronation, and to correct voluntarily by muscular action, much will be gained. If the muscles are weak, systematic exercises — as outlined by Ellis, Roth, and adopted by other writers [5] — will help.

The disadvantages under which the foot works must be minimized by avoiding toeing-out in walking or standing.

The importance of proper shoeing need not be dwelt on here; its importance has been fully and often explained. A further lessening of mechanical disadvantage may be accomplished by the use of the Thomas sole.

Many cases, however, require some actual mechanical support, for a time at least, for muscular control is only gradually learned, even if the patient persists, as many do not, and often it is necessary to give the stretched muscles a period of rest before they can take up their proper function. The simplest form of support is the felt pad beneath the inner arch, often most efficient as a temporary measure. In the same category comes, for acutely painful cases, the application of adhesive plaster strips from the outer side of the foot beneath the sole and up the inner side of the ankle and leg, holding the foot in the desired supination. This method is especially serviceable if combined with the felt pad.

For firmer support metal plates have been the usual scheme. As ordinarily applied they are open to several objections:

(*a*) They are clumsy.

(*b*) They interfere with the action of the muscles, and make constant pressure on the muscles of the sole of the foot.

(*c*) They either do not embrace the outer side of the foot at all, in which case the foot tends to slide off outward, and bears excessively on the outer side of the boot. Such a plate lacks efficiency as a support, and may be a cause of discomfort.

(*d*) Or, they support the outer side of the foot at one point only, thereby losing a valuable point of support, in that they do not directly work against the abduction of the front foot on the calcis.

(*e*) They act ordinarily more as support from beneath than as direct aids against inward rotation, and often simply transfer the point of weight bearing without ensuring full correction of the vicious position of the foot.

These objections we have tried to avoid in an apparatus which is herewith presented (Fig. 8). It is relatively light, seems, being an elastic skeleton, to give comparatively free play to the foot muscles, and corrects satisfactorily, preventing extreme pronation, resisting pronation in lesser degrees, and even in the corrected position fitting the foot closely, with slight lateral pressure outward. It is supported on the boot sole, front and back, on the inner side, so gaining an effective fulcrum. The pressure on the foot comes to some extent as moderate elastic support of the inner side from below, but mainly as elastic pressure outward applied just below the tuberosity of the scaphoid.

At the outer side are two points of support, and the action of the plate under weight is to produce a relative adduction of both the front foot and the hind end of the calcis — that is to say, to carry the cuboid into supination with relation to the calcis. In this way correction is obtained by lateral thrust and counter-pressure, which corrects more certainly than support beneath, and interferes much less with the normal bearing of the ball of the foot on the boot sole.

The apparatus is made of strips of spring steel, eighteen or twenty gauge, riveted together as shown, made to fit a cut-out plaster cast, which is taken in the corrected position. The pressure plate is of alu-

[4] Hoffa: Langenbeck's Arch., 1895, li, 40. Nasse: Deutsche chir. Lief, 66, I. Hälfte, S, 131.

[5] Hoffa: Loc. cit. Whitman: Boston Medical and Surgical Journal, 1893.

minum bronze. The whole apparatus is then fitted to the foot before tempering; the bars along the inner and outer side and the anterior cross-bar permit a good deal of actual support to be given locally where it is needed, as in cases where it is desirable to support the anterior arch. After fitting, the apparatus is given a spring temper and is covered with leather, a thin pad of felt being fixed between the leather and the pressure plate, if necessary.

The apparatus is not intended for flat-foot or for feet with any appreciable bony change, nor for heavy patients. There are also cases of uncomplicated pronation which may for a time need a rigid support; for such cases, of whatever class, a plate on the lines of Whitman's, but furnishing two points of support externally, would seem to meet all requirements; often a simple arched steel plate without external support will suffice.

For the ordinary pronated foot, however, the apparatus here presented seems, so far as we have used it practically, sufficiently light and comfortable, checks vicious standing and tends constantly to correct pronation, while to some extent permitting the normal muscular use of the front foot, and allowing the rotation of the foot incident to its normal use. In this way it favors a normal gait, and facilitates the active use of the foot, which is necessary if we are to attain a cure, not merely the alleviation, of the pronated foot.

In closing, it may be said that this paper, in so far as it relates to treatment by apparatus, is a preliminary one only.

EPIDEMIC JAUNDICE.[1]

BY E. H. POMEROY, M.D., CALUMET, MICH.

"JAUNDICE is strictly never an individual disease, it is merely an affection or a symptom of disease." These words of Austin Flint are as obvious and axiomatic to-day as when they were uttered; but as it is a symptom dependent upon so many and various conditions, it is impossible to wholly discontinue it from pathological nomenclature.

The object of this paper is to place upon record a few facts pertaining to an epidemic of jaundice which prevailed in Calumet and vicinity during the summer and fall of 1897. Jaundice in this case and in this paper will be referred to as meaning catarrhal cholangitis without the presence and irritation of biliary calculi.

The jaundice produced is what is known as hepatogenous jaundice. Professor Fitz, in the "American Text Book of the Theory and Practice of Medicine," mentions the opposite views of Ponfick and Stadelmann. In this, Ponfick elaborately demonstrates how hematogenous jaundice occurs, and Stadelmann demonstrates very conclusively that hemotogenous jaundice never occurs. These speculations are foreign to the purpose of this paper, and are mentioned merely in passing for the benefit of those who may be disposed to enter more elaborately into possibilities concerning the etiology.

For the purpose of this paper, hematogenous jaundice as it appears in typhoid fever, pyemia, cancer, aneurism, etc., will not be referred to except to exclude it from consideration.

[1] Read at the Thirty-third Annual Meeting of the Michigan State Medical Society, May 5, 1898.

Although the term "epidemic jaundice" seems to be well recognized in literature, yet it was entirely a new term to all the physicians in Calumet. We have mentioned the epidemic to a number of professional men visiting us and to a number whom we have visited, and almost invariably the term has seemed to strike the auditor as something unusual if not entirely new. Strümpell says, in his well-known work: "Experience has repeatedly shown that often, particularly in spring and fall, this disease, catarrhal jaundice, comes like an epidemic," and in almost every volume of Sajous' "Annual" is a record of an epidemic of jaundice occurring somewhere. Professor Graham, of Toronto, in the recent "American System of Medicine," by Loomis and Thompson, says: "Jaundice occurs frequently in epidemic form," and mentions records of such epidemics confined to one or two villages, or to certain garrisons.

In looking through the literature of jaundice, simple catarrhal cholangitis, either sporadic or epidemic, is attributed by the authors, almost unanimously, to a gastro-duodenal catarrh. This catarrhal condition of the mucous membrane of the duodenum causes a catarrhal inflammation and thickening of the duodenal end of the common bile duct. This inflammation and thickening of the end of the duct produces a partial stenosis and a plugging of the lumen with thickened mucus — this, in turn, causing a damming back of the bile, and a reabsorption of the bile pigments with, perhaps, some of the more toxic elements of bile. It is not the purpose of this paper to contradict this theory of the etiology of jaundice. It is, however, noticeably strange that a disease depending so entirely upon gastro-duodenal catarrh for its origin should be so uniformly free from any symptoms of gastro-duodenal catarrh. This seems to be recognized by all of the authors when reaching the subject of treatment in their articles upon jaundice — all, almost without exception, advising a treatment to excite the activity of the stomach and duodenum, and the incidental activity of the liver and hepatic and cystic ducts and membranes.

Speculation in the etiology of jaundice is always excited when one attempts to comprehend either the immediate or the remote cause of the discoloration of the tissues. This speculation is especially excited by study of the epidemic which it is my purpose to record. If the cause of catarrhal cholangitis be always an extension of inflammation from a catarrhal duodenum into the mouth of the hepatic duct, as is claimed by some, or whether it be due to a toxin in the bile causing an irritation of the absorbent tissues, as is claimed by others, whether it be a transformation of hemoglobin into bilirubin, as is claimed by Semmola and Goeffredi, or whether it be a simple cholemia from the absorption of coloring matter from the bile, there are still features in the etiology which are hard to understand, and the epidemic to which I refer, to me increases the number of questions to be asked about the etiology, and to add but little that will throw light upon the answers to those questions. This is from the fact that the epidemic, although quite extensive, was uniformly mild, without a death, and with very few grave symptoms or noteworthy sequelæ.

My own opinion — and this opinion is shared by most, if not all, of the physicians in Calumet — is that the cause is a specific infection, to a considerable

degree contagious, and dependent to some extent upon the altitude of locality, and little if at all influenced by temperature; and, in the Calumet epidemic, polluted water, as a factor, either for drinking or culinary purposes, could well-nigh be excluded.

The infectious agent seemed to pollute the air of the room to a marked degree, as evidenced by the increased severity of the disease in the cases of those members of the family who were among the last to contract the disease. For example: a child exposed to the disease would become ill, and would be kept at home, and successively five, six or seven other members of the family would contract the disease, and invariably the last one in the family affected would manifest the severest symptoms. The next neighbor appearing to obtain the disease from association with this family would show the same progression from mildness to greater distress from the first one in the family to the last, and the presence of the disease in the house appeared to concentrate the infectious element to such a degree as to cause more pronounced symptoms in those the longest exposed to the contagium before contracting the disease. I cannot think the jaundice in the Calumet epidemic could have been caused simply by a mechanical occlusion of the ends of the bile ducts containing normal bile, but rather that some toxic product of the infectious element rendered either the bile abnormally absorbable or the tissues abnormally absorbent. Whether or not epidemic jaundice be always due to the same infection is somewhat doubtful. It is difficult to believe that the epidemic in Calumet, in Chasselay, and the one in Paris, where, as in Calumet, there was not one death, could be the same as the one in Essen, where the mortality was very high, or the one in Martinique, where there were 20 deaths in 30 cases. This is perhaps not less explicable, however, than the mortality rates in various epidemics of diphtheria.

This outbreak commenced in June, 1897. It prevailed in Calumet, and by Calumet I refer not only to the Calumet and Hecla mining location but also to the adjacent locations and villages: Tamarack, Osceola, Centennial, Wolverine, Kearsarge, Allouez, Red Jacket and Laurium, containing in all a population of 30,000. The elevation of land is about 700 feet above the level of Lake Superior. It is on the top of the ridge in the middle of Keewenaw Point, about five miles from Lake Superior, both on the east and west, and at the southeast lies Torch Lake, which is an arm of Portage Lake, which lies twelve miles to the south.

One peculiar circumstance in connection with the epidemic is, that although the communication is very active and free between the people living at the mines and the people living at the mills, five miles distant, at Lake Linden the epidemic did not exist along the lake either at Lake Linden or at Portage Lake (Houghton or Hancock), or at the Lake Superior water-works to the west of the mining location.

Between June, 1897, and January, 1898, there were about 675 cases of jaundice. The most of these cases were in children under eight years of age; the youngest was three months of age. In the whole number of cases there were approximately 30 cases among adults. In the epidemics cited by Professor Graham it is stated that the younger soldiers were most frequently afflicted in the garrisons, and children were the most frequently afflicted in other epidemics of this disease. The mortality varies greatly. In Essen the mortality was very high, while in the epidemic at Chasselay and the one at Paris there was not one death. In an epidemic at Martinique there were 20 deaths in 30 cases, most of these being pregnant women. In Calumet the cases were about evenly divided between males and females.

It is the impression of all of the physicians attending these cases (in the Calumet epidemic), that the onset of the disease in adults was attended with much more pain and distress than with the children.

This impression may be the result of imperfect observation by the physicians and by the parents of the children. Generally the first symptom exciting the alarm of the parents was the discoloration, and then the physician was called. This discoloration among the adults did not occur until from two to four or five days following the onset of the disease. Presumably this was the case with the children to some extent, although we cannot believe that the attacks generally were ushered in with as much pain and distress in those cases attacking the children as in those attacking adults. In every case attacking an adult the pain was very much the same as a classical attack of colic from the passage of gall-stones, although generally somewhat milder. During this epidemic it was noticed that those patients who had for some years been subject to an occasional attack of cholelithiasis seemed to have attacks during the height of this epidemic. Within the space of seven weeks, at the height of this epidemic, there were more attacks of cholelithiasis, confirmed by the recovery of gall-stones from the dejecta, than were ever known in this community, in the same length of time, before or since. During one day I personally attended four women in attacks of gall-stone colic, and the gall-stones were found in the stools of three of these patients within forty-eight hours of these attacks. In three of these cases there was marked jaundice, but very evanescent in character, lasting not more than from one to three days.

The exciting cause of the jaundice cannot be traced to any pollution of drinking-water. The majority of those afflicted used habitually pure water drawn from Lake Superior; the others used, some of them, water from the Tamarack Dam, which is water subjected to frequent examination and uniformly good; others used wells, and still others, filtered rain water.

The disease appeared to be contagious to the extent that it appeared to progress along neighborhood lines. There would be from one to seven cases in a family, but in no case did it attack every member of a family. In one family of eight people there was but one case. These eight people were all adults. The one case was a woman who has a number of grandchildren living in the community who habitually visit this house; 12 of these grandchildren were jaundiced, but only one of the six adults among the parents of these grandchildren. In another family in the next house, of four people, there was one case; in another house about 400 feet from these, in one end of the house there were seven people of whom five were jaundiced; in the other end of the same house there were five people among whom two were jaundiced. In one end of the next house to this there were four people, of whom three were jaundiced; in the other end of the house there were four people and none jaundiced. In the next house were eight people,

of whom six were jaundiced; in the other end of the same building there were four people, of whom two were jaundiced. In the next house were seven people and none jaundiced. Across the street from this were two families, six people in each family; and of these 12 people, three were jaundiced. In another house nearly adjoining these were 12 people, all adults, and only two were jaundiced.

Another instance appearing to show contagion: four of five boys who habitually played together were all attacked with the disease at about the same time. In each case these four boys were the first to have the disease in their families; 12 others in their families were subsequently attacked. The period of incubation appeared to be from three to fourteen days. The remaining one of the five boys mentioned did not contract the disease at all; and although there are six people in his family, of whom three are children, none of them contracted the disease.

The weather during this epidemic was not unusually severe, and there was no other epidemic prevailing in the community at the time. We made several efforts to isolate some positive etiological factor in the disease, but wholly without success. The course of the disease was extremely mild; there were no deaths and, consequently, no autopsies, and the symptoms were not sufficiently alarming to excite either the family or the physician to extraordinary acuteness of observation. In a great many cases we made very painstaking analyses of blood, urine, feces, sputum and stomach contents; but these all failed to give us any light about the etiology of the disease. The symptoms were, as previously stated, mild; this was especially so with the children. There would be generally a rise in the temperature of one or two degrees; sometimes languor, dulness, irritability, occasional vomiting; and when from the outset of the disease the typical discoloration was delayed beyond a week, it was noticeable that the case was more severe, although in the severest cases it was remarked that upon the appearance of jaundice there was immediate amelioration of the more distressing symptoms. This description of symptoms applies generally to those cases which were not the first to be taken sick in the family. The first symptom, in the majority of cases, to cause the physician to be called to the family, was the appearance of jaundice; the alarm was excited by the discoloration more than by the severity of the other symptoms. It was frequently possible at this time to get a history of previous illness on the part of the children, but which, before this discoloration, had not been considered sufficiently severe to warrant the parents in sending for a physician.

Another feature of the disease which perhaps might here again be remarked, is one noticed by a number of physicians, namely, that those children who were the last to be taken sick with the jaundice showed the severest symptoms.

The character of the jaundice was unusual in being of a paler yellow than is ordinarily found in catarrhal hepatitis, and of much shorter duration. While among the 675 people attacked during this epidemic, there were some in whom the jaundice persisted for three or four weeks, the overwhelming majority were not jaundiced more than three or four days. In some patients in whom the jaundice could be most confidently predicted from the prodromic symptoms, and in whom the jaundice did appear, it was not well marked more than from thirty to forty hours.

In my first call to one of the cases I was accompanied by Professor Dock, of Ann Arbor. The patient was a woman, aged fifty, who had been ill but a few hours; it appeared a characteristic, rather mild case of cholelithiasis. I predicted that the woman would be jaundiced within twenty-four hours; twenty-four hours passed with no appearance of jaundice, but on the following day, forty-eight hours from the attack, the jaundice was well marked, but disappeared on the third day, and there were no other cases among four people in that family; but under the same roof in another family of seven people, there were five attacked with jaundice.

The sequelæ were unimportant; in not more than one per cent. was there any enlargement of the liver or spleen one month after the appearance of jaundice, and at the present time, April 20, 1898, I am unable to find any case showing any symptoms referable to the jaundice. The only exception I can make to this statement is that several of the children who had previously been thin and delicate showed marked improvement in nutrition after the jaundice. This was very marked in a great many cases.

The treatment followed was generally the treatment of ordinary endemic or sporadic catarrhal jaundice. In adults an anodyne was first administered, followed by a vigorous cathartic, either a mercurial or saline, and then the phosphate of soda given until the stools were of normal color and the bile acids had disappeared from the urine. We still consider phosphate of soda our best hepatic stimulant, and I believe we are justified by the best authorities. Not that the best authorities are agreed upon the action of soda upon the liver; apparently about half of the very best give it because it increases the secretion of bile, and in the bile ducts the increased amount of bile acts by flushing out the inspissated mucous plugs in the ends of the bile ducts, and thus cleansing the ducts and relieving the hepatic cells from increased absorption. The other half have proven very conclusively that the soda salts in small doses have no effect whatever upon the amount of bile secreted, and that large doses decrease the amount secreted. These, however, use the soda salts as an hepatic stimulant on the theory that they produce an alkalinity of blood which affects the bile secreted, and this bile in the ducts is rendered more solvent to the inspissated plugs, and relief is thus obtained.

Other treatment which was entirely symptomatic, yet not directed to the discoloration, was for the itching, the hebetude, the weakened heart's action, anorexia, etc. For the itching, probably the best remedy at our command, in this as in simple jaundice generally, is the daily subcutaneous injection of from one-twentieth to one-fourth of a grain of muriate of pilocarpine, though I doubt if Witkowski's claim, that a malignant diagnosis can with certainty be made where this treatment fails to give relief within eight or ten days, can be sustained, yet there was nothing in this epidemic to controvert any theory concerning malignant hepatic disease. In many of our cases, however, we did give a reasonable amount of attention to the daily amount of excretion of urea. When this is kept at a normal amount, the physician can expel, from his own mind, at least, any danger of the jaundice being due to malignant disease, which he may previously have suspected.

Clinical Department.

A SUCCESSFUL PYLORECTOMY, WITH REMOVAL OF A PORTION OF THE PANCREAS, FOR CANCER OF THE PYLORUS.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON,
Visiting Surgeon to the Massachusetts General Hospital.

The following case is the first and only one of pyloric cancer which I have found on exploration to be favorable enough to encourage me to attempt complete extirpation of the disease. Considering the frequent occurrence of cancer in this portion of the alimentary tract, the early manifestation of its presence, and the hopelessness of medical treatment, it is a matter of regret that the surgery of gastric cancer has received thus far in this community so little attention. It is, of course, natural that the surgeon, and through him the physician and his patients, should be prejudiced against a procedure which is thought to be almost invariably unsuccessful. Greater experience in operations upon the stomach, however, will doubtless lead us to be more hopeful as to the results. The ever-increasing percentage of permanent cures of cancer in the breast, after early operations by improved methods, make us confident that the results will grow still better as the importance of early and extensive dissections becomes generally realized. It seems, therefore, not unreasonable to hope that early and extensive dissections in malignant disease of the stomach may result in many cures. Even admitting the serious nature of gastrectomy[2] and pylorectomy, greater experience with these operations, performed when the patient's strength is good, will probably lessen the mortality greatly; for there is every reason why operations upon the stomach should succeed. The structure of its walls, its accessibility, the facility with which plastic methods and suturing may be applied — all render the prospect of success encouraging. Yet unless the disease is recognized in its early stages, a permanent cure can hardly be expected, no matter how successful the immediate operation may be.

Annular strictures of malignant origin, whether in the pylorus or in the intestine, are, in the beginning, slow to involve contiguous structures or to invade lymph glands; — the disease is limited to the tube itself. Thorough extirpation at this time is favorable for both immediate and permanent results, and encourages early explorations in cases of suspected cancer. I believe that a digital exploration of the stomach and the pylorus is justifiable in all cases in which cancer is suspected, and that in the absence of positive contraindications such exploration should be made, with the understanding that extirpation shall immediately follow if the lesion is favorable for this operation.

In the following case the diagnosis presented no difficulties; the prognosis was unfavorable for operation because a tumor could be felt — all cases with tumor having proved in my experience hopeless on exploration. The tumor was freely movable, however, and apparently did not involve the liver or other organs. Owing to the close relation of the tumor to important structures, the operation seemed formidable. These structures, however, especially the great vessels and their branches to the stomach, to the duodenum and to the pancreas, were easily recognized and either tied or avoided. The cut surface of the pancreas was the source of some hemorrhage, which was easily checked by ligatures. The approximation of the open ends of the stomach and the duodenum was accomplished without difficulty; the line of suture seemed perfect.

Mrs. S., age sixty-seven, came to me April 7, 1897. For two years she had had pain in the region of the umbilicus, with loss of sixty pounds in weight. Vomiting was a prominent symptom early in the disease, but it had ceased some time before she came to me. She had been treated by the water-cure. I found a movable tumor in the epigastrium, and sent the patient to the Massachusetts General Hospital. Her symptoms in detail are omitted. Suffice it to say that a diagnosis of cancer of the pylorus was made, and exploration advised. It was not expected that the conditions would justify attempts at extirpation.

The operation was performed on April 21, 1897. There had been a preliminary lavage by Dr. Young. The tumor was found to be connected with the pylorus, and to be about as large as a lemon. No masses could be felt about it; no glands behind, above or below it; it was freely movable, and could be withdrawn from the abdominal cavity outside the line of incision. The case seemed a favorable one for operation.

The mass was accordingly pulled up and out as far as possible, and well packed about with gauze. I first separated the layers of omentum to get at the posterior part of the tumor. The gastric artery and the gastro-epiploica dextra were tied, and the mass separated from the attachments of the pylorus and the duodenum. It was then cut out well above and below by means of scissors. The tumor was clearly connected with the head of the pancreas, a portion of which was therefore excised.

The mucous membranes were first united with continuous silk suture, which brought the ends into partial approximation and stopped the hemorrhage. The peritoneal surfaces were adjusted leisurely and carefully with interrupted silk sutures, one row being applied. Extravasation was provided for by means of five small gauze wicks. The time of operation was one hour.

At the end of a few days the wicks were withdrawn. There was considerable leakage of a fluid which proved to be pancreatic. The discharge gradually grew less and finally ceased. The patient left the hospital on May 28th.

This patient's recovery was owing, in my opinion, to the use of gauze which provided an outlet for leakage. In extensive plastics upon the stomach, and especially in excisions of portions which by their shape require elaborate incisions for accurate approximation, the dangers of extravasation are great, both from the technical difficulties in the way of making a tight joint and from the action of the gastric juice. I consider some provision for drainage, therefore, essential. Of about twenty circular enterorrhaphies, in which the portion excised varied in extent from a V-shaped segment to a five-foot coil — all the cases that I can recall without consulting my records — six died. Five died of shock within a few hours; one died of peritonitis from the original extravasation; all the rest recovered. Many of the patients had a temporary fistula from leakage between the sutures. It is safe to say that most would have died had the abdomen been closed. In simple gastrotomies the line of incision is so perfect that drainage is not necessary, and I have never employed it.

The subsequent history of the foregoing case shows that the operation, though immediately successful, was

[1] Reported at the Clinical Meeting of the Massachusetts General Hospital.

[2] Since the operation upon this case three successful gastrectomies have been performed — one by Schlaker, one by Bingham and a third by the writer. The last, soon to be reported in this *Journal* is doing well, two months after the operation (May 31st).

too late to prevent recurrence. For some months the patient continued to gain in health and strength. She was able to be up and about the house. The wound became entirely healed. She took food well; the bowels were regular; there was no pain. In September, however, she noticed that "her stomach was growing hard." From that time she failed gradually, and on January 26, 1898, nine months after the operation, she died.

The recurrence and death in this case by no means contraindicate the radical operation; they rather stimulate us to renewed efforts for early interference. Had exploration been resorted to two years before, when the pain in the umbilical region first became persistent, the result, it may safely be said, would have been quite different.

In other abdominal organs persistent pain calls attention to the possibility of some serious lesion — to gall-stones, to appendicitis, to renal stone, to pelvic growths. Pain in the epigastrium always suggests cancer of the stomach, if the age of the patient is such as to make this diagnosis probable. Other symptoms confirm the suspicion. Tumor is almost the only sign that proves the diagnosis — but this sign proves also the hopelessness of the case. Pain, vomiting, hematemesis, accompanied by interference with digestion and loss of flesh, justify exploration. If on exploration cancer confined to the stomach is found, the most extensive dissection is indicated, in view of the hopelessness of the case under palliative treatment.

Medical Progress.

REPORT ON THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

(Concluded from No. 4, p. 90.)

Digitalis in Mitral Disease.

In mitral stenosis the strain to effect this equilibrium of the two circulations falls upon the right ventricle. The features of mitral stenosis are a high pulmonary and a low systemic blood pressure, a regular slow pulse, a tendency to pulmonary congestion and systemic anemia. Whilst these conditions are maintained digitalis can do no good. The indication in cardiac distress arising in mitral stenosis would be to relieve the right heart by unloading the venous system by direct venesection or intestinal and hepatic derivatives, and a restricted diet and treatment of pulmonary complications as the urgency of the symptoms might require, but when these conditions being satisfied, the pulse still remains quick and irregular and the right heart embarrassed, the employment of digitalis is certainly indicated, and in the presence of cardiac need consideration of raised arterial tension may, as a rule, be disregarded since the first and predominating influence of the drug is upon the heart. As soon, however, as the cardiac action is restored to regularity, the arterial effects of the drug must be remembered and while endeavoring to maintain, without increasing, its effects upon the heart, by greatly diminished doses, any undue action on the vessels must be watched for and avoided.

In mitral regurgitation with commencing or established heart failure all the conditions that call for the beneficent action of digitalis are present. This does not apply to acute cases nor to the presence of a mitral regurgitation in a senile heart.

The most common mistake that one observes in the use of digitalis is that too large a dose is prescribed at first, which tends to premature arterial contraction and cumulative effects. With the appearance of these physiological symptoms the drug is stopped and some other medicine substituted, until the pulse again calls for its administration. In this haphazard way of using digitalis the heart is never held in good control. In exceptional cases, where there is urgent need to push the drug, digitalin is best used subcutaneously. In ordinary cases a dose of ten minims of the tincture every four, or fifteen minims every eight hours, or five minims every waking hour is sufficient. Thus given, the patient being at rest, it generally takes about three days before the pulse is under control and the urine begins to increase. When its decided effects are thus gradually developed, the drug should be steadily continued in doses calculated to maintain its effect. With ordinary watchfulness there is no risk whatever; timely warning of excess is given by the pulse, which, having become slow, begins to exhibit small intermediate beats and especially a tendency to go in couples. This is always a sign to reduce the doses or to omit for a few hours. An occasional mercurial will sometimes prevent the nausea that too often supervenes with digitalis, a change to digitalin in equivalent doses may be tried or a tumbler of very hot water be taken occasionally. In some cases it is not to be overcome except by omitting the drug; the patient is usually well under the influence of digitalis before this symptom appears, in which case a small dose of digitalin by the mouth or hypodermically may be sufficient to maintain its effect upon the heart.

In speaking of digitalis, the drug is regarded as representing the whole therapeutic group. Digitalis is the most efficient member, strophanthus comes next. The one reason for its use is that it affects the small vessels less; this gives it an advantage in some cases, particularly, perhaps, in carrying on the effects of digitalis in convalescent aortic, regurgitant and mitral stenosis cases. But under most conditions this very action upon the arterioles is one of the valuable attributes of digitalis and explains possibly its superiority over strophanthus. The drugs may be combined when it is desired to secure an increased cardiac effect without using digitalis in doses large enough to contract the vessels too much. Convallaria comes next as a cardiac tonic in mild cases.

From a therapeutic point of view the osmotic circulation in the cellular tissue and serous and mucous cavities is scarcely less important than the vessel circulation discovered by Harvey. The occurrence of dropsy may sometimes afford time for the readjustment of the circulatory balance in the heart and vessels. But if with the help of remedies this does not take place and the dropsy advances, interference becomes imperative when it is estimated that the pressure in the cellular tissue becomes great enough to equal or exceed the pressure in the capillaries. The fluid should be renewed by the employment of Southey's tubes, incisions or simple punctures.

Exercise in the Treatment of Heart Disease.

Exercises have been reduced to a system in three grades: massage, the resistance exercises, or their equivalent in the mechanical methods introduced by

Zander of Stockholm in 1872, and others, and the graduated walking exercises of Œrtel.

Massage.

Massage is a means of helping on the convalescent stage of acute heart affections and of combating the tendency to stagnant circulation in those who are disabled by chronic heart disease. The treatment is still more useful in maintaining the circulation, and mildly but sufficiently stimulating the coronary circulation in those who, bed-ridden or sofa-ridden from any other cause, tend on that account to impairment of heart nutrition, and suffer from chilly extremities, feeble pulse, torpid digestion and passive congestion of the lungs. The treatment is not to be advised in acute heart affections.

Resistance Exercises.

The effect of the Schott or Nauheim exercises may be said to be a stimulation of the heart's action, with some steadying effect and increased completion of systole, an improved circulation through the coronary vessels and an increased mobility of the blood by its readier passage in greater bulk through the muscles, thus relieving stagnation in the great internal organs, especially on their venous side. The graduated and observed exercises of Schott and Œrtel may be regarded as a counsel of perfection for those who can afford them as a preliminary to the return to that measure of active life of which their heart condition admits, and as a guide indicative of what that measure will be, and by what degree of ordinary exercise it may be arrived at.

Resistance exercises are especially adapted for the initial treatment of those flabby, irritable, "stuffy" hearts, using the term as applied to cases of fatty infiltration and impaired metabolism which are met with in people of venous plethora.

In cases of chlorosis with dilated heart after a preliminary week or two of rest the Schott treatment is valuable if combined with a dry, bracing climate and some chalybeate.

It is useful in commencing failure of the heart, in chronic valve lesions, combined with a more or less cessation from all other exercises, and also after such cases have been restored up to a certain point by digitalis treatment.

It is unsuited in all cases of acute endocarditis while there is any trace of activity of lesion remaining, and in cases of advanced cardio-vascular changes of the nature of sclerosis or in introspective people with neurotic hearts.

Œrtel's Treatment.

This treatment has been replaced very much by the Schott exercises, to which, however, it may be regarded as a sequel. Its chief advantage is that it is undertaken in the open air.

Exercise in General.

All the points that have been noted with respect to formulated exercises are common to other less regulated kinds of exertion of similar degree and severity.

Formerly weak-hearted people were not allowed to move, now they are made to walk. The swing of the pendulum is tending perhaps too much towards exercise.

Baths.

The strong brine and aërated baths of Nauheim and other places are unquestionably of much service in some circulatory disorders. It is well pointed out by Dr. Groedal that the baths and exercises are two separate therapeutic agents, and that in perhaps only 20 per cent. of the cases are they usefully employed in combination, although massage may be more frequently employed.

Acute Heart Failure.

The treatment of acute heart failure may perhaps be best referred to in connection with pneumonia of which it too often forms the fatal turning point. In this disease the conditions affecting the heart are (1) stress of labor, (2) blood supply and nutrition impoverished and vitiated, (3) innervation, excited and debilitated by the effects of shock and pyrexia.

It will be generally noted that the heart failure comes on suddenly, but there may have been one or two preliminary warnings of partial collapse, etc. At the very beginning of these signs ammonia should be given but should be changed after a few days for a mineral acid, of which dilute phosphoric acid is the best. Some digitalis or strophanthus should be added to the mixture and strychnine should be given separately either in an extra quantity or subcutaneously, if the absorbing powers of the patient are at all doubtful. But the most powerful remedial agent is oxygen, and should be at hand in all severe cases and should be given in good time as an occasional inhalation. In any case where heart failure threatens, the high temperature must be reduced by a degree or two by hot or cold sponging.

For sleeplessness a small dose of ten grains or twenty grains of sulphonal, taken in a hot fluid at 8 or 9 P. M., and with this preliminary a twenty-grain dose of bromide taken at 10.30 P. M. is often sufficient to secure some restful sleep. When delirium is a marked feature hyoscin in doses of one-two-hundredth grain subcutaneously, and repeated once or twice, may sometimes be used to advantage. Cases of persistent sleeplessness almost invariably prove fatal with heart failure. In these severe cases morphine should be given to secure a few hours' sleep and to give the nervous system time to recuperate, and to allow of some restoration of heart power before it is too late. Death has appeared to be averted in some cases by (1) a strong dose of food and stimulant, (2) one-third-grain dose of morphine with atropine, (3) the maintenance of aëration by the oxygen current being frequently played over the mouth and nostrils for a few minutes at a time. The oxygen may be warmed as it enters the bag by passing it through a coil of tubing immersed in hot water. Strychnine seems to favor this peculiar sleeplessness of patients when utterly exhausted, but its power is unrivalled as a cardiac stimulant and its use in cases severe enough to lead up to this condition is quite essential and it may be renewed on the effects of the morphine passing.

Acute heart failure in other diseases and from other causes requires a similar handling, varied to meet varieties in the case. Oxygen inhalations are particularly valuable in the treatment of heart failure due to fatty degeneration of the organ in old people. Cheyne-Stokes breathing is a symptom in these cases. Strychnine is a most useful cardiac stimulant.

Overstrain.

The treatment of an overtaxed heart and the lighter degrees of overstrain is simply a short period of complete rest, followed by steady but carefully-graduated exercise, calculated to maintain cardiac and general muscular circulation and nutrition without exciting the heart's action or increasing the blood pressure.

The treatment of overstrain in an unsound heart is involved in that of the heart disease upon which it supervenes, and the same remark applies to the more severe effects of strain, such as rupture of valves, aneurisms, and the like.

Infective Endocarditis.

In face of the dreadful mortality of 80 per cent. of the cases that prevail arsenical treatment must promptly be abandoned for any more promising remedy, and looking to the pathology of the disease, it would seem that in the modern development of serum therapeutics there is most to be hoped for its future treatment.

There have been recently reported four cases treated by antistreptococcus serum with the very encouraging result of three recoveries, but a considerable, and as yet unpublished, experience at the various large hospitals and in private has gone far to moderate enthusiasm for this method of treatment. It may be laid down as a principle governing treatment by this particular serum that the more distinct the history of a previous endocardial lesion, and a subsequent exposure to infection through a suppurative medium or a sewer-gas sepsis, the more appropriate the case for treatment. This rule would discourage its use in cases in which the pneumococcus, gonococcus or some other microbes divergent in character from the streptococci and staphylococci were concerned; and if with the recognition of this principle and its earlier and bolder carrying out more encouraging results are obtained, it will certainly follow that analogous measures will be found for the circumvention of the other forms of microbic action.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SECTION ON THE PRACTICE OF MEDICINE, DENVER, JUNE 7–10, 1898.

(Continued from No. 4, p. 94.)

THIRD DAY.

SOME USUALLY OVERLOOKED PHYSICAL SIGNS AND SYMPTOMS IN CHEST DISEASES.

DR. NORMAN BRIDGE, of Los Angeles, Cal., read a paper with this title.

Pulmonary tuberculosis is usually unilateral at the beginning, and so we have early a normal side of the body for comparison. By examining the two sides critically and comparing them with each other repeatedly, it is often possible to detect lesions that point unmistakably to incipient disease. We may find slight lessening of the vesicular murmur on inspiration, or slight increase in expiratory sound, at first without the tubular quality. Making allowance for the slight disparity between the two apices, if we can hear the expiratory sound better on one side than the other, there is an abnormal condition of the lungs. Later the tubular quality may be slightly perceptible.

In going over and comparing the two sides we should see if there is even a slight difference between them in: (*a*) length of the inspiratory sound; (*b*) intensity of the normal vascular quality of that sound; (*c*) length of the expiratory sound; (*d*) intensity of the sound and elevation of its pitch above what is normal; (*e*) vocal fremitus on the uttering of words that cause an extreme vibration, as *ninety-nine*; (*f*) the transmission on to the auscultating ear of the ordinary voice and soft whisper. Râles should be searched for on deep inspiration, with profound expiration, and on voluntary coughing.

Tuberculosis usually begins in a circumscribed region of one lung, or in the bronchial mucous membrane; and if there is any tendency to recover, a deposit of adventitious tissue (fibrosis) soon forms through contiguous lung tissue, which invariably changes the physical signs, the greatest change being near the focus of the disease.

Finding any slight changes in the two sides, we should carry our comparison all over the lungs and note where they are most evident. The back is the best region for this comparison. Listening over the lower zone of the lungs posteriorly the sounds are absolutely alike and normal on both sides; as we rise, listening every half inch and changing the stethoscope from one side to the other we strike a zone at about the lower angles of the scapula, where we can perceive that the vesicular murmur on inspiration is a trifle less pronounced and the expiratory sound perhaps a trifle more so and longer than on the opposite side. One inch higher up this disparity is more perceptible. Above this level the difference is progressively greater; as we ascend, the vesicular murmur is growing less and the expiratory sound greater, louder, longer and stronger and soon higher in pitch. Over the seat of the deposit the tubular breathing is most striking if the bronchi are not closed by phlegm.

If the deposit of connective tissue is slight, the sound does not reach an entire ablation of the vesicular murmur on inspiration, nor is there any ideal bronchial breathing, but only a slight increase in the loudness and length of the expiratory sound.

As the expiratory sound increases in loudness and rises in pitch, there is always a corresponding increase in vocal fremitus over the region, as well as in the transmission through the chest wall of the voice in phonation and whisper. With patulous tubes these sounds increase in loudness, as the solid substance of the breathing organ increases in mass.

Many things besides tuberculosis may cause a slight disparity between the two sides of the chest, and pleuritis is rather a common one. If the difference between the two sides is slight and uniform over the whole of both lungs at the back, and there are no other signs, then a former pleuritis is probably the cause.

In many cases the physical signs are markedly reduced, especially the râles, by deep inspiration and failure to expire freely. In a few incipient and slight cases this trick may hide all symptoms. The patient should be taught to expire profoundly. The diagnostic value of extreme expiration is not confined to the production of râles by the undisturbed flow of air through the narrowed air channels. Sometimes, if the patient will voluntarily cough at the end of such an expiration,

râles will most unexpectedly be brought out. In a lung with beginning tubercular deposit in the upper part near the larger bronchi, the vesicular murmur is sometimes lessened over the whole lung, except the part that lies directly above the deposit, and there is very little expiratory sound with little of the tubular quality and few or no râles, while the vocal fremitus is still moderate in degree and the percussion resonance is nearly normal, but there is reduced transmission of voice sounds. Such a condition can only be explained by assuming complete closure of some of the bronchi, by pressure from without, by thickening of their walls or by thick phlegm.

Early in most cases of unilateral, localized tuberculosis there is greater cough during recumbency on the affected side, due to the tendency of the phlegm to run down into the smaller bronchi. Of course, as soon as the lesion extends to the lateral periphery of the lung, or if it should happen to begin there, this test will fail. It rarely fails from this region in an incipient case; it fails more often from the paucity of secretion. It is not unusual for this symptom to be pronounced early in a case, and the reverse symptom to be present later when the air channels of the periphery become full of muco-pus.

A striking tendency to error in considering chest signs is shown in cases of fluid in the pleural cavity in little children. Dulness on percussion is a sign in pleural effusions; but in small children there is little or no dulness over the lower part of the chest, especially on the left side; gas in the stomach or bowels almost completely masks this sign. If the pleural cavity is full to the apex, there is dulness, even flatness, at the top, which by absence of dulness low down leads to the erroneous theory of apical consolidation of the lung. The books make a fatally false statement when they say that the intercostal spaces bulge. They only do this when the pleura is tense nearly to bursting. They should say that the intercostal spaces are less depressible and more firm. Though lung sounds are not much transmitted through fluid, in a child's pleural cavity, faint bronchial breathing is heard. This fact, with the absence of bulging spaces, leads many astray.

Dr. Ingalls, of Chicago, believed that the front of the chest was better for making comparisons between the two sides in the majority of cases. He thought we should be very careful not to confound these early signs with other signs that have nothing to do with tuberculosis; he had seen many cases where the patients had been told that they had tuberculosis when such was not the case; it was a mistake in diagnosis, but the patient had been made miserable for life and driven to an early grave.

A pulse of 115 to 120 in a person otherwise well points pretty positively to tuberculosis. In text-books, the voice sounds are represented as being present over the fluid in pleurisy, but the speaker did not think that these voice sounds could be obtained in one case out of fifty.

Dr. Tyson, of Philadelphia, thought Dr. Bridge had struck the key-note when he stated that pleurisy with effusion had a diminished fremitus; a distinctive feature of pleurisy with effusion was the bronchial breathing with diminished fremitus; there is but one exception, that occurring in children with a purulent effusion; here, there may be an increase of the fremitus.

Dr. Edson, of Denver, said the rapidity of the pulse, especially if it was at the same time an irregular, nervous one, was a very suspicious sign, not only in advanced cases but in incipient cases of phthisis. This was not only of great diagnostic but was of great prognostic importance, particularly in cases in this high altitude of Denver.

Dr. Beggs, of Denver, remembered a statement made by Dr. Glascow, of St. Louis, ten years ago which had impressed him a great deal; it was that no man was to be considered capable of diagnosing incipient phthisis until he had examined a thousand chest cases. In cases of incipient phthisis there is an inconstancy in the occurrence of vocal fremitus. In many cases in which the anatomical conditions were practically the same, the character of the vocal fremitus and resonance varied; even in the same patient this varies from time to time.

As regards pleurisy, he referred to the case of a child of fourteen years, in whom the right pleural cavity was filled with a serous fluid, as was proven by puncture; in this case there was no bulging and no difference in the measurement of the two sides.

A sign which had given the speaker much trouble was that of muscular susurrus; every student should have his attention called to this sign.

Dr. Bridges closed the discussion. In his paper he had intended to call attention to a few of the possibilities and liabilities of error in making a diagnosis of particularly such diseases as phthisis, especially in their early stages. Muscular action was often a source of error and great trouble, especially to young practitioners; these men should be instructed to keep the muscles of the chest wall at rest during examinations.

He referred to the slight fibroses which might occur and which travelled downwards and were often so great as to interfere with chest examinations, especially if they be made from in front. If there is evidence of these fibroses extending below the fissure between the two lobes of the lungs posteriorly, there is strong evidence that there is a lesion of considerable importance situated above it. He wished to emphasize the point that the patient should be told to expire forcibly.

CHRONIC DIARRHEA ASSOCIATED WITH ACHYLIA GASTRICA.

Dr. Allen A. Jones, of Buffalo, read a paper with this title.

Among the causes of diarrhea the different conditions of the stomach that give rise to abnormal intestinal fermentation and irritation are of the utmost importance. For many years a form of diarrhea characterized by evacuation of the bowels after each meal, the stools containing considerable undigested food, has been termed lienteric. Formerly the explanation given for this was that the food was hurried through the gastro-intestinal tract so rapidly that there was no time allowed for digestion.

While this explanation is partly true, it was not until the gastric secretions were studied, and more known of the motor functions of the stomach, that it became evident that, although only a minor part of digestion was carried on in the stomach, yet the passage of much unchanged food was not likely to occur if the sphincter was normal and if there was an active secretion of gastric juice. The fact that a diarrhea is seldom lienteric, provided the gastric function is correct, is proof that this position is tenable. When foods are retained in the stomach long enough and

chemical and mechanical changes of digestion proceed actively, the food is in a fair state of solution and will not pass through the intestines without being so changed that separate food elements will be unrecognizable.

If gastric secretion were normally active and yet the pylorus abnormally relaxed and patulous, food might be hurried through the intestines so as to appear unchanged in the feces, but such a condition does not frequently exist, as the pylorus is exquisitely sensitive to active secretion, and the circular fibres are reflexly stimulated so as to properly protect the orifice. If, on the other hand, gastric secretions fail and the gastric contents are not digested, we are most liable to have a condition of affairs liable to give rise to lienteric diarrhea, provided intestinal peristalsis is sufficiently hurried, or the succus entericus is diminished or absent.

In the gastric affection called by Einhorn "Achylia Gastrica" there is a suspension of the secretions of the stomach, which is due in some cases to atrophy of the gastric glandules, and in others is due to a nervous disturbance of secretion. Some cases may begin as a neurosis and go on to organic disease and atrophic changes. When the disease is established chemical change does not occur in the food. Finely divided carbo-hydrates may undergo more or less digestion, but albuminoids are not changed. There is a remarkable absence of fermentation. But little acetic or butyric acid is formed, even when much saccharine, starchy, and fatty food is ingested. Even when there is poor gastric motricity, and consequent delay in the passage of the gastric contents into the duodenum, there is practically no fermentation, which is the opposite of conditions prevalent in cases of gastrectasia from pyloric stenosis or atonic dilatation.

The causes of diarrhea in cases presenting an absence of gastric secretion may be various. One of these causes is the precipitate manner in which the stomach propels its contents into the intestines. Sometimes the stomach is empty one hour after a meal. Again the chronic inflammation of the gastric mucosa may extend into the intestines and give rise to diarrhea from chronic catarrhal enteritis, or the intestine may simply rebel from overtaxation, or the diarrhea may be the result of intestinal irritation from unusual toxic substances developed in the bowel.

Hemmeter found normal pancreatic and hepatic secretions in five cases of achylia associated with diarrhea, and hence thinks that extension of the inflammatory process is probably not the cause of the trouble.

The diarrhea differs in different cases. There are invariably several morning evacuations, and after the middle of the forenoon no further trouble in some cases; in others the diarrhea is post-prandial; in a third class there are many evacuations during the day, taking place irregularly. In some cases there is diarrhea every day; while in others it is periodic, coming on suddenly, lasting a week or two and then followed by constipation or by regular daily evacuations. In some cases there is a good deal of intestinal flatulency.

Pain is not a common symptom in these diarrheas. There is usually no elevation of temperature; the temperature is sometimes below normal. The appetite in some cases is voracious. The character of the stools varies. In some instances there is an abnormal amount of mucus. The discharges are frequent and watery. In some cases there may be constipation, but this is less common.

In the treatment of this intestinal affection hydrochloric acid is most efficacious; 20 to 30 drops of the dilute acid may be given after meals, and the dose repeated in an hour. Some give four to eight centimetres well diluted before meals. Jaworski says the acid is needed to develop the formation of pepsinogen in the gastric glandules. The acid is quickly neutralized and combined in these stomachs. In some cases its presence cannot be detected ten minutes after administration.

Dr. J. M. Anders, of Philadelphia, thought that achylia gastrica occurred frequently in gastric carcinoma, atrophic catarrh of the stomach and neuroses of the stomach. He believed that lienteric diarrhea frequently depended upon catarrhal states of the intestines. He was surprised not to hear that this condition of achylia gastrica had been found associated with tuberculosis. In the majority of cases there was some great underlying condition co-existent — tuberculosis, amyloid degeneration, stomach neuroses, etc. — which should not be overlooked in the treatment of this affection.

An interesting fact, from a scientific point of view, he had noticed in certain conditions where, by the use of Ewald's test meal, there was an absence of hydrochloric acid and the gastric ferments in the gastric contents, namely, that, in spite of the absence of these associated constituents, there may be perfect intestinal digestion and absorption.

Dr. Stockton, of Buffalo, said that this symptom of achylia gastrica — diarrhea — does not depend upon one factor alone, and that it is largely a nervous expression. One patient of his had this trouble only when pregnant. Another had this diarrhea when at home; so soon as she goes away from home she is relieved.

Dr. Elliot P. Joslin, of Boston, said that in nervous affections the character of stomach contents and the great variability of the symptoms were interesting. Sometimes there is an acidity, sometimes hyperacidity; sometimes there is diarrhea, and sometimes constipation. The speaker then related a case of achylia gastrica in which was melancholia, enteroptosis combined with a nervous origin of the disease.

In the treatment of this affection he did not agree as to the use of hydrochloric acid. He related an experiment in which he took three eggs and added two or three pints of a ten-per-cent. hydrochloric-acid solution, and after letting it stand for a short time he found there was no trace of hydrochloric acid; it had all combined with the albumin.

Dr. Jones closed the discussion. As regards tuberculosis, it had been his experience to find achylia gastrica associated with the pulmonary form. In regard to the nervous side of the question, he stated that this affection had been found in stout women with hysterical manifestations, particularly those of middle life. He wished to emphasize the fact that constipation is a symptom of nervous significance. In many cases we do not get gastroptosis or enteroptosis, especially in male cases. There are some instances of irritable stomachs with quite a large quantity of free hydrochloric acid found in women with enteroptosis and gastroptosis, especially when they have floating kidneys.

ON NATURE'S CURE OF PHTHISIS, AND AN EFFORT TO IMITATE IT.

John T. Whittaker, of Cincinnati, O., read this very interesting and scientific paper.

Schlenker made a complete autopsy in 100 bodies, and found 66 were tuberculous; of these, tuberculosis was the cause of death in 53 per cent., was of great importance in 6 per cent., and was latent in 41 per cent. of the cases. These numbers are minimal, because the examination was a macroscopical and not a microscopical one. A true estimate of the frequency of this infection can be derived only from tests with tuberculin. It is universally conceded that two-sevenths of mankind succumb to tuberculosis of the lungs alone; two-thirds of mankind are affected with tuberculosis; and one-third die of the disease. Therefore in one-half of the cases recovery is complete, or the disease is reduced to such a quiescent state as to be practically non-existent.

What is the process of cure in these cases? Pretty much all the cases which have the benefit of altitude recover. There is something in altitude which gives first immunity, and in the second arrests the progress of the disease. Autopsy reveals the presence of adhesions, of nodules, of cicatrices and cirrhotic induration. The natural processes of cure seem to be initiated (1) by means which in some way chemically destroy the tubercle bacillus, either directly or by means of the action of toxins or antitoxins, or (2) indirectly by sterilizing, immunizing or invigorating the soil. We must bear in mind that phthisis, as we see it, is not a simple but a mixed infection, whereby toxins are intensified through symbiosis. Certain micro-organisms antagonize, others intensify, each other. The engrafting of the streptococcus pyogenes upon the tubercle bacillus produces toxins of a higher degree of virulence than belonged to either alone. One of the most important factors in the treatment of tuberculosis is the prevention of mixed infection.

Do we get any light as to natural processes from our successes with drugs? Creosote is the only drug which has held its place in the treatment of phthisis. Does it sterilize the soil, and is any such substance produced in nature? Unfortunately there is no good working theory to explain the action of creosote. It is admitted on all sides that this drug destroys all organisms that induce fermentation in the stomach without affecting the process of digestion; and the virtues of the creosote have been ascribed to the improvement of the nutrition, which sets in in some cases surprisingly soon. What would seem to lend support to this view is the superior virtue of the carbonate of creosote, the so-called creosotal, the least irritating to the stomach.

The only natural agents known to have an inhibitive effect upon the tubercle bacillus are some of its own products, to wit, the so-called various tuberculins which have been extracted from culture soils. Gross attempts have been made to imitate nature through the processes of cicatrization, notably by Landerer with cinnamic acid, which he found would induce a migration of leucocytes into the necrotic tissue of tubercle. This process was followed by the penetration into the mass by young blood-vessels, the formation of connective tissue with subsequent shrinkage and contraction. Of 50 cases treated, 58 per cent. were reported cured, 20 per cent. improved, and 4 per cent. unimproved, while only 9 per cent. died. The latest efforts to secure leucocytosis by the ingestion of various nucleins, enzymes, etc., find also only individual support.

Nothing in art approaches the efficacy of nature in controlling tuberculosis of the peritoneum by exposure of that structure to the external air. The speaker then cited as a sample of the sweep of surgery a desperate case of tubercular peritonitis, which recovered. The opening, the exposure, the irrigation of cavities in the lungs is not often followed by such happy results. Surgery fails for the most part in the lungs, probably because of the mixed infection, but more probably because the knife cannot reach, lay open or expect the mother colonies in the bronchial glands.

Another attempt to imitate nature consisted in producing hyperemia in order to secure the effects of carbonic acid gas, because it had been shown that patients with heart disease attended with hyperemia of the lungs enjoyed a certain immunity from tuberculosis; so also with persons affected with emphysema. Also, in certain deformities of the chest, patients were exempt because a certain amount of carbonic-acid gas was distributed over a smaller surface. Traube produced this gas in the stomach with hydrochloric acid and bicarbonate of soda. Bergeon attempted to produce the same effect by means of the infection of sulphuretted hydrogen into the intestines.

(To be continued.)

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-Third Annual Meeting, Boston, May 24–26, 1898.

FIRST DAY. — MORNING SESSION.

Dr. A. C. Sinclair, of Boston, delivered the

ADDRESS OF WELCOME.

In addition to his cordial greeting, he spoke of the development of the Society since its organization and predicted a brilliant future for its work.

The President, Dr. Paul F. Mundé, in the name of the Society, thanked Dr. Sinclair for his kind words of welcome and good wishes.

It was then moved that the members of the Boston Obstetrical Society be made the guests of the American Gynecological Society and be accorded all the privileges of such during the meeting. The motion was unanimously carried.

Dr. Edwin B. Cragin, of New York, read the first paper, entitled

CONGENITAL PELVIC KIDNEY OBSTRUCTING THE PARTURIENT CANAL, WITH REPORT OF A CASE OF VAGINAL NEPHRECTOMY.

As the results of Henry Morris's study of the autopsy records of the Middlesex and Guy's Hospitals show that congenital misplacement of the kidney within the pelvis occurs approximately in one out of a thousand individuals, the author considers this condition of sufficiently frequent occurrence to be of interest to the obstetrican, as a possible cause of dystocia, and to the gynecologist because it is generally mistaken for a new growth in the pelvis. Cases of floating kidney are not considered in the paper, only those in which the lack of mobility, the short ureter, and the

arrangement of the blood vessels show the displacement to be congenital. The right kidney is more often misplaced than the left, although in floating kidney the reverse is generally the case. In 35 of the 40 cases reported in the literature the displacement was of the right kidney. In nearly all cases the opposite kidney was in its normal position. In one it was absent. The arterial supply of a misplaced kidney usually arises from one of the common iliac arteries, but in some cases has its origin from the aorta just above its bifurcation. The condition has been found in cases where there was some anomaly of the genitals, such as absence of the Fallopian tube, or malformation of the uterus or vagina. The symptoms vary. If there be hydronephrosis of the displaced kidney, pressure symptoms will be present. The condition is often unrecognized during life; still more often it is mistaken for something else.

The author has found reported but five cases in which congenital pelvic kidney has given rise to dystocia. In the first case the kidney obstructed labor in two confinements, the children, however, being delivered, and the patient lived to the age of seventy-five years. Autopsy showed the tumor which had obstructed labor to be the kidney.

The second case, occurring in Gusserow's clinic, was a woman with a transversely contracted pelvis. A tumor lying in front of the sacrum was made out to be the kidney. Labor was induced at the thirty-third week, but the child lived only twenty-four hours. In a second pregnancy labor was again induced, and the patient died soon after of edema of the lungs. Autopsy verified the diagnosis.

In the third case the patient had been delivered of two living children and one dead child. Labor was induced and the child lived.

The fourth patient was allowed to go within a few days of term, when labor was induced and a living child delivered after a difficult version. This woman had previously borne seven children without medical attendance, in spite of the fact that she had a rachitic pelvis.

The fifth case was a woman pregnant for the third time. The previous labors were long and difficult. After being in labor fourteen hours, she was seen by a physician who found her in collapse and the uterus ruptured. The woman died on the fifth day, and autopsy showed the left kidney fixed in the pelvis.

The case reported by the author was seen by him in consultation with Dr. Painter of New York. The patient, who was twenty-five years of age, had had two previous labors, the first being terminated by forceps, the second by version. She was then eight and a half months pregnant, and a tense, elastic tumor behind the cervix reduced the internal conjugate to about seven centimetres. The tumor was supposed to be an ovarian cyst, and, as it was evident that a living child could not be delivered unless something were done, it was decided to remove it. A vaginal incision was made and the tumor tapped. It was then found to be a distended left kidney firmly attached beneath the promontory of the sacrum. As it still formed an insurmountable obstacle to delivery, it was determined that vaginal nephrectomy was necessary. The vessels and ureter were clamped at the hilus of the kidney, the latter removed close to the clamps, the clamps replaced by ligatures, and the wound lightly packed with gauze. Seventeen hours later a well-developed child was born without difficulty. The patient made an uninterrupted recovery.

DR. HOWARD A. KELLY, of Baltimore: I have seen three cases of misplaced kidney, but none was associated with pregnancy. In two of the cases the abnormal kidney was the left. In the third, seen in the practice of Dr. Hunter Robb, the patient was being operated upon for tubal disease when the kidney was found situated just below the brim of the pelvis and adherent to the mass. It was removed and the woman made a good recovery.

DR. H. T. HANKS, of New York: To the author is due the honor of having performed the first vaginal nephrectomy.

DR. A. LAPTHORN SMITH, of Montreal, then read a paper on

PREGNANCY FOLLOWING VENTROFIXATION, WITH IMPROVEMENTS IN TECHNIQUE.

The author's conclusions, based upon about 2,500 cases, reported by 41 operators in reply to a circular letter, and including 111 of his own, were as follows:

(1) That so far as curing retrodisplacements is concerned, whether retroflexion, retroversion, anteflexion with retroversion, and also prolapse of the uterus, ventrofixation, with its two buried silk sutures passing through the peritoneum and fascia, gives the most reliable results. Failures are unknown when the operation is performed in this way.

(2) Ventrofixation should be reserved for cases in which abdominal section is necessary for other reasons, such as detaching of adhesions and the removal of diseased tubes which caused the adhesions. When it is expected that pregnancy may follow, some other operation should be chosen, because:

(3) Although pregnancy only followed in 148 cases out of about 2,500, still in 30 per cent. of these, or 36, there was pain, miscarriage, or difficult labor requiring obstetrical operations.

(4) When suspensio uteri was performed, that is, the uterus attached to the peritoneum, only a few relapses occurred; but on the other hand, the patients were free from pain during pregnancy and the labors were less tedious; neither did they require resort to serious obstetrical operations. The uterus should therefore be suspended rather than fixed to the abdominal wall in all cases in which any part of the ovary is allowed to remain.

(5) A third method — namely the intra-abdominal shortening of the round ligaments — is preferable, it is claimed by some, to either ventrofixation or suspensio uteri. This may be done either by drawing a loop of the round ligament into the loop which ties off the ovary and tube; or, in cases in which the latter are not removed, simply to detach them from adhesions and shorten the round ligament by drawing up a loop of it and stitching it to itself for a space of about two inches. By this means, the round ligament develops as pregnancy advances, and the dragging and pain and other more serious accidents which are present in 30 per cent. of the cases of ventrofixation are certainly avoided.

(6) If the uterus is attached to the abdominal wall the stitches should be kept on the anterior surface but near the top of the fundus; the complications were more frequent when there was too much anteversion than was the case when the anterior surface of the fundus was attached to the abdominal wall.

(7) As large a surface as possible should be made to adhere, by scarifying both the anterior surface of the fundus and the corresponding surface of the abdominal peritoneum, in which case one buried silk will be sufficient to keep the uterus in good position.

(8) Several of the correspondents mentioned incidentally that they knew of many cases of pregnancy after Alexander's operation and that in no case was the pregnancy or labor unfavorably influenced by it. Alexander's operation should therefore be preferred whenever the uterus and appendages are free from adhesions.

(9) The results of Alexander's operation are so good that even when there are adhesions it might be well to adopt the procedure of freeing the adhesions by a very small median incision and then shortening the round ligaments by Alexander's method; after which the abdomen should be closed. This could be done without adding more than one-half of one per cent. to the mortality, which in Alexander's operation is nil.

THE TREATMENT THROUGH THE POSTERIOR CUL-DE-SAC OF ADHERENT UTERI

was the subject of a paper read by William R. Pryor, M.D., of New York.

The author advocated this method in preference to all others as a means of treating these cases. By employing the Trendelenburg posture, the operator is afforded as ample a view of the peritoneal cavity as in abdominal section, and is enabled to excise as much or as little of the diseased tissues as may be found there. It has the further advantage that it obviates the danger of subsequent hernia which so frequently occurs after Alexander's and the abdominal operation.

AFTERNOON SESSION.

Subject for Discussion:

HAS ELECTRICITY CEASED TO BE A USEFUL THERAPEUTIC AGENT IN GYNECOLOGY?

Dr. H. J. Garrigues, of New York, answered this question most strongly in the negative and described at length the various forms of electricity, their effects upon the different tissues, and their uses in diseased conditions of the female pelvic organs. He maintained that in certain cases which permitted of a protracted course of treatment, electricity could be employed with marked benefit and often ultimate cure. He cited the case of a woman, age forty-two, in which a myoma in the posterior wall of the uterus had entirely disappeared after thirty-eight applications of galvanism given during a period of nine months.

Dr. E. H. Grandin, of New York, was equally strong in his denunciation of electricity as a therapeutic agent in gynecology. He admitted that at one time he had been an enthusiast in his belief in the efficacy of this treatment and had made a most thorough study of it. After a trial of the Apostoli method which covered a period of several years, he had been obliged to take back all that he had said and written in favor of it, having found its use utterly without benefit in all cases and positively harmful in some. He had employed the method in a series of fifty cases of uterine fibroid, and in none did it cause any decrease in the size of the tumor, much less its disappearance, except in those cases in which the onset of the menopause was a factor. In this class of cases he considers the certainty of operative treatment much to be preferred to the doubtful, palliative effect of electricity.

Dr. G. H. Engelmann, of Boston, said that judging from the work of many members of the profession and from the journals in which their cases were reported, electricity in gynecology had by no means ceased to be a useful therapeutic agent. He has employed it in the past and still continues to employ it because he has obtained beneficial results from its use. That this method of treatment is perhaps employed less than formerly, he attributed to the fact that the times have changed and that results which can be accomplished slowly but safely by electricity may now be effected more rapidly by other means. The extravagant advantages claimed for the method by enthusiasts had also done much, he thought, to bring it into disfavor.

In the general discussion which followed, the method was almost universally condemned, and several of the members were most emphatic in their denunciations of it.

THE PORRO OPERATION *versus* TOTAL EXTIRPATION.

Dr. Hermann J. Boldt, of New York, read a paper with this title. The following are his conclusions:

(1) Total hysterectomy should be performed in preference to suprapubic hysterectomy with extraperitoneal treatment of the stump.

(4) The operation should never be performed unless absolute indications are present.

(3) The uterus can be rapidly removed by applying clamps on either side. The difference in time consumed in a Porro operation and in an ideal total hysterectomy is not more than a few minutes, because the elastic ligature is dispensed with and the proper attachment of the cervix in the lower angle of the wound nearly equals the time consumed in ligaturing the vessels and the peritoneum after removal of the uterus.

(4) When the child is dead *in utero*, the organ should not be opened for the purpose of first delivering it — the uterus should be removed *in toto* unopened.

The advantages of the total hysterectomy over the Porro operation are:

(*a*) Less danger of infection.

(*b*) Practically no danger from secondary hemorrhage.

(*c*) Less danger of intestinal obstruction.

(*d*) A shorter period of convalescence.

(*e*) Less danger of ventral hernia.

It has no disadvantages which cannot be overcome by a practical test.

SECOND DAY. — MORNING SESSION.

Dr. H. J. Garrigues, of New York, read a paper on

ANESTHESIA: OBSERVATIONS IN REGARD TO THE SCHLEICH MIXTURE.

The author recommends the use of the Schleich mixture in gynecological practice on account of its rapid evaporation and elimination from the respiratory tract, which make it especially desirable in prolonged operations and in those cases in which the

patient is in the Trendelenburg posture. The following are the formulæ of the three strengths of the mixture.

No. I. — BOILING POINT 38° C (100.4° F).

Chloroform,	45 parts by volume.
Petroleum ether,	15 " " "
Sulphuric ether,	180 " " "

No. II. — BOILING POINT 40° C (104° F.)

Chloroform,	15 parts by volume.
Petroleum ether,	15 " " "
Sulphuric ether,	150 " " "

No. III. — BOILING POINT 42° C (107.6° F.)

Chloroform,	30 parts by volume.
Petroleum ether,	15 " " "
Sulphuric ether,	80 " " "

The author has employed this mixture in a series of a hundred cases at St. Mark's Hospital, New York City, and he considers it safer than any other anesthetic. It is much more agreeable to the patient than either chloroform or ether, and ranges between chloroform and the A. C. E. mixture in the length of time it requires to produce narcosis. Its administration is simple, and it may be used in any case in which general anesthesia is not contraindicated. In the investigations of the author the ages of the patients ranged from ten to eighty years. In some cases there was heart disease, in others lung trouble, and several had albuminous urine. The average duration of the anesthesia was fifty-two minutes, but in several cases it was continued for one, two or three hours. Allis's inhaler was employed with the double current attachment commonly employed in chloroform administration. He begins with a drop of the mixture and then gives about one and a half cubic centimetres every half minute, employing the No. I mixture. He begins with this in every case, and if narcosis is not produced in ten minutes he changes to the No. III. He never employs the No. II, which he considers superfluous. Anesthesia was produced on an average with seventeen and a half cubic centimetres — a little over half a fluid ounce. The total amount used during the operation averaged 50.91 cubic centimetres — one and two-thirds ounces — the minimum being 20 cubic centimetres and the maximum 180. The average length of time required to produce narcosis was six minutes; the minimum two minutes, the maximum seventeen. Very little excitement, rarely any cyanosis, and much less vomiting were caused by this anesthetic than with chloroform or ether. It has no special influence on the pulse, but the respiration must be watched, for in some cases it became very imperfect. The return to consciousness was rapid and the effects of the narcosis soon wore off.

The author concludes, therefore, that the mixture is well taken; that anesthesia can be produced in a short time and kept up with a small quantity of the fluid; that it produces no bad effect upon the kidneys; that the heart is not affected by its use, but that it is attended by some danger to respiration, although not more so than other anesthetics.

(*To be continued.*)

PROFESSOR V. EULENBURG, of Berlin, the chief editor of the *Deutsche medicinische Wochenschrift*, has been elected an honorary member of the Society of Psychiatry and Nervous Diseases of Moscow.

THE BOSTON

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DR. WILLIAM PEPPER.

IN the death of Dr. William Pepper, which occurred last Thursday, in California, America loses one of her best-known physicians. Although closely identified with Philadelphia and its medical interests, Dr. Pepper, through his writing and public spirit, was known in a much wider sphere, and the news of his somewhat untimely death will be felt wherever the English language is read.

He was born in 1843, and obtained his academic training at the University of Pennsylvania. He later graduated from the medical department of the same institution and was connected with various hospitals in Philadelphia. It was he who was chiefly instrumental in the establishment of the University Hospital, securing the gift of a site from the city of Philadelphia and serving as chairman of the finance and building committees.

In the University of Pennsylvania he was lecturer on morbid anatomy in 1868–1870, and on clinical medicine in 1870–76, and professor of the latter branch from 1876 to 1884, when he was elected to the chair of the theory and practice of medicine. In January, 1881, he was unanimously elected provost of the University. This office he resigned in 1894. He founded the *Philadelphia Medical Times*, and was its editor in 1870–71, and was medical director of the Centennial International Exposition, and for his services in connection therewith received from the King of Sweden the decoration of Knight Commander of the Order of St. Olaf.

He held membership in many national and local societies, and was at times president of many of them. In 1881, he was given the degree of LL.D. by Lafayette College.

Work for which Dr. Pepper will be appreciatively remembered is that in connection with the development of a more thorough medical course. This advance was secured through the extension of the course

of study in the University of Pennsylvania to four years. Toward the carrying out of this plan he made a liberal personal subscription. Our larger medical schools have, as we know, in general adopted a four years' prescribed course, so that the pioneers have lost some of the prestige of the reform which at the time seemed so radical. In 1892, under Dr. Pepper's leadership, the University took another step forward in the establishment of a post-graduate department for women.

His most important literary work was the editing of the "System of Medicine by American Authors." This secured an immediate success, and is recognized as one of the chief American authorities on medical questions. He published, in conjunction with Dr. John F. Meigs, successive editions of their work on "Diseases of Children." Among his contributions to journals or the transactions of societies were many medical papers of value.

Apart from work associated with his profession, which always claimed his first attention, he was a public-spirited man in the best sense of the term, and was to Philadelphia a good citizen as well as an eminent physician. The places of such men are hard to fill.

THE PATENTING OF DIPHTHERIA ANTITOXIN.

It is announced that Behring on June 21, 1898, received letters patent from the United States Patent Office for processes connected with the manufacture of diphtheria antitoxin. The application for this patent was made in January, 1895, and it had been several times refused.

This unfortunate confirmation of the previously suspected commercial tendencies of this distinguished investigator cannot but be a severe blow to his reputation as a scientific investigator and to the renown which German scientists have attained by their activity in the fields of research which have proved of such great practical benefit to humanity.

As has been pointed out editorially by the *Medical News*, the credit for the discovery of diphtheria antitoxin and its application to disease by no means belongs to Behring alone.

The names of Klebs, Löffler, Fränkel and Roux need only to be mentioned to suggest their distinguished contributions to our knowledge of the diphtheria toxin, of the production of immunity by repeated injections of the toxin, and finally of the antitoxin. Roux's experiments, in fact, gave the first convincing proof of the value of the serum.

The other eminent contributors to the priceless discovery of the antitoxin of diphtheria, animated by the highest motives in their work, gave its results freely to mankind without thought of remuneration.

It remained for Behring to take the unenviable position of the money-getter, and to appropriate to his selfish benefit the work of other men whose contribution to the grand result were at least equal to his own.

Where personal gain becomes the object of scientific investigation and each worker seeks to appropriate as far as possible to his own personal benefit the work of his brain, without being too solicitous as to whether his patent includes the results of work done by others, the benefits to humanity which have formerly resulted from the disinterested efforts of scientific men cannot but be sadly curtailed.

We have little reason to fear, however, that the example of this prominent contributor to human knowledge and welfare will be followed by the majority of the best class of scientific men, who will continue to regard, as heretofore, the interests of humanity as paramount to those of their private bank accounts.

MEDICAL NOTES.

The University of Odessa. — A medical faculty is about to be constituted in the University of Odessa, and will be formally opened next autumn.

Appointment of a Woman-Physician. — Dr. Marie L. Lefort, who was recently appointed district physician by the Board of Health of Newark, N. J., is the first woman to receive such an appointment at the hands of that body.

Aged One Hundred and Nineteen Years. — Mr. Robert Taylor, postmaster at Scarva, County Down, Ireland, is dead. His age is officially given as one hundred and nineteen years, but it is believed that he was even as old as one hundred and thirty years.

Leyden Honored. — The Paris Academy of Sciences has elected as correspondent in the section of medicine and surgery Professor Ernst von Leyden, of Berlin. Thirty-two votes were cast for Professor von Leyden and five for Professor Zambaco, of Constantinople.

The White Cross Mission. — A new society is the White Cross Mission, recently organized in Oregon. It is similar in character to the Red Cross Association, but entirely distinct from it. It is stated that the War Department has granted it permission to begin its work of nursing at Manila.

Corresponding Members of the Pathological Society of Philadelphia. — Professor Rudolph Virchow, of Berlin, Professor M. V. Cornil, of the *Faculté de Médecine de Paris*, and Professor William H. Welch, of Johns Hopkins University, Baltimore, were recently elected corresponding members of the Pathological Society of Philadelphia.

Colored Nurses. — It is announced that the government is about to secure twenty-five colored women as nurses, expenses and wages $30 per month, to be paid by the government. Some of these nurses will be in the service of the Red Cross and others will be sent to posts assigned by the government. As quali-

fications they must have had yellow fever or have nursed through an epidemic at some time, and possess physician's certificates from their homes stating that they are good nurses.

Work of the Red Cross Association. — It is stated in the daily press that some slight friction has arisen between the medical officers of the regular army and the Red Cross Association. We have no absolute knowledge of the facts, but it is easy to see how difficulties might arise when two organizations are attempting to do essentially the same work. Whatever the merits of the situation may be, it would appear altogether advisable that there be but one head in the medical direction of the army hospitals and that that head be stringent in the exercise of its authority. There can be no doubt of the sincerity of purpose of the Red Cross Association; but there is also a certain danger that its enthusiasm may, at times, carry it too far, and lead to the defeat of its ends.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, August 3, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 21, scarlet fever 11, measles 28, typhoid fever 13.

President of the American Ophthalmological Society. — Dr. O. F. Wadsworth, of Boston, has been elected President of the American Ophthalmological Society.

Old Cullis Home Burned. — It is a source of congratulation that the old Cullis Consumptives' Home has been burned. The building was worthless and probably infected with the bacilli of tuberculosis.

No Stamp on Death Certificates. — It is stated that the Cambridge Board of Health has followed the example of Boston in ceasing to demand the use of ten-cent internal revenue stamps on death certificates. The matter has given considerable trouble to the Board of Health, owing to the friction between the undertakers and the physicians as to which should affix the stamps. The action is certainly a commendable one. It would seem that a death certificate was one of the last ways in which to secure revenue, and at least should only be resorted to in dire extremes, to which, fortunately, we have not come.

NEW YORK.

Birthday of a Centenarian. — It is a special pleasure to record the exceptionally long lives of those of pure American birth and descent. On July 27th, Mrs. Phœbe Doty Hedges, of Summit, N. J., celebrated her one hundredth birthday, and the occasion was made memorable to her by a visit from a chapter of the Daughters of the American Revolution, of which she is an honored member. Mrs. Hedges lives with her daughter, Mrs. Morris, in the house in which she was born, in 1798, and while unable to walk, on account of an injury to her hip due to a fall seven years ago, can work very deftly with her hands and is in full possession of her mental powers. She is the sixth lineal descendant of Edward Doty, who came to America on the *Mayflower*, and it is stated that the old Doty homestead is still standing at Plymouth. Her father was a Minute Man in the Revolutionary War, serving in one of the New Jersey regiments. She was married, on December 24, 1815, to Edward Hedges, a descendant of one of the original settlers of New Jersey. Mrs. Hedges has four living grandchildren and two great-grandchildren, the youngest of whom is four years old.

Death of a Centenarian. — At the same time that Mrs. Hedges was holding her reception the funeral of another centenarian was taking place at Newark, N. J. This was Elijah Boulden Glenn, who was born on August 7, 1796, and was consequently within a few days of being one hundred and two years old. He was born near Baltimore, Md., and he took pride in tracing his ancestry back to Pochahontas. While a lad he fought in the ranks during the war of 1812. He was married in New York in 1829, and had two sons, one of whom, at the age of sixty-six, survives him.

Miscellany.

THE EFFECT OF SICKNESS IN THE ARMY.

It is an interesting observation, and one, no doubt, well borne out by the facts, that more lives are lost in an ordinary campaign through sickness than through violence, and also that the demoralization of an army by sickness is much greater than by the deaths and wounds of its members occurring in action. This is due, in great measure, to the fact that the soldier goes to war with an expectation, of the possibility at least, of being killed or wounded in battle, but with small thought of the less romantic inroads of fever or dysentery. It therefore happens that when many are on the sick list through these latter causes, a feeling of dismay is apt to arise which is much more subtle and hard to control than the casualties of the field of battle. As has been said: "The procession of comrades, well and hearty but a few days ago, ever wending its way from company quarters to the hospital tent, and the daily wail of the fife and the sombre boom of the muffled drum as comrade after comrade is taken to his last resting-place, very soon tells upon the men, and even the healthiest and the most hopeful soon give evidence of the strain under which all are suffering. There is a contagion in sickness other than what is usually meant by that word; a sympathetic contagion, which is far more depressing, far more fatal than physical contagion. A regiment with a heavy death-rate is a regiment that is not to be reckoned with in actual service. The disease, whatever it may be, that has stricken down so many of its members, has apparently seized upon all. All certainly are affected by it. Time may and probably will come when the regiment will be on

the battlefield like a wall of iron; but so long as disease is sapping its strength and its energy, there is not heart enough in the whole organization to fill its ranks with healthy courageous blood."

THE VICTIMS OF THE "BOURGOGNE" DISASTER.

The shocking details connected with the loss of life in the recent sinking of the French Line steamer *Bourgogne*, have been enhanced by the reports brought from various sources that two weeks or more after the accident the bodies of the victims were seen floating on the surface of the water, buoyed up by life-preservers, which many had had time to adjust. A more distressing spectacle is hardly to be conceived. The query occurs to us: Why did not the commanders of the vessels which have brought the news take measures to hasten the sinking of the bodies by cutting them loose from their supporting life-preservers? We find no mention of this having been attempted, although the conditions were altogether favorable. The captain of one of these vessels is said to have stated that when this picture of human calamity was passing before their eyes the ocean was in the most placid mood he ever remembers to have seen the North Atlantic. It was so smooth that the officers aver that a matchbox would have made an object for investigation for the practised eye of a sailor. The waves sent out from the vessel's propeller were all that affected the apparent restfulness of the bodies and made them move up and down in the ship's wake. The displacement of the great ship widened her wake behind, affecting bodies that were a long distance off.

THERAPEUTIC NOTES.

Eczema of the Eyelids. — The proximity of the eye, the ease with which the tender skin of the lid can be injured, as well as complications in the form of conjunctivitis and blepharospasm — make it necessary to adopt a special mode of treatment. In the majority of cases, the inflammation of the conjunctiva attended by a muco-purulent discharge, can be cured, according to Antonelli,[1] by diligent cleansing with a weak sublimate solution (1–8000 *without* alcohol) coupled with instillation of silver nitrate (1–300) or protargol (0.2–0.4 — 100.), while the blepharospasm can be successfully combated either by the application of cold compresses, three times a day for several seconds each time, or by applying a cocaine salve (0.15–0.2 : 5.0 vaseline). We can also incorporate the cocaine in the salve to be used in the treatment of the eczema, thus: Zinc oxide, bismuth subnitrate, ten grains each, cocaine hydrochlorate eight grains, lanolin, vaseline, two drachms each. For the dermatitis of the lids the non-irritating salves are the best; as, white precipitate salve one per cent., calomel salve two to four per cent., the borosalicylate salve (acid boric, acid salicylic ten grains each, lanolin, vaseline pure, three drachms each). If the skin is very much inflamed and moist, then we resort to powders (Venetian talc) or to painting with one-per-cent. solution of picric acid. Obstinate cases in children with pronounced scrofulosis require the employment of some stimulating salve, as resorcin, acid salicylic, fifteen grains each, zinc oxide half a drachm, vaseline ten drachms. The children must also be prevented from irritating the sore spots. Removal of crusts, thorough cleansing of the nose, eventual opening of abscesses and pustules of acne, as well as the general constitutional treatment, must always be borne prominently in mind.[2]

[1] La Médecine Infantile, March 15, 1898.

Protargol in Ocular Therapeutics.—At the instance of Professor Neisser,[3] of Breslau, Dr. Darier used protargol in his ophthalmic practice (*Therapist*, May 14, 1898) with good success. Protargol (a combination of protein and silver, in the form of a fine yellowish powder, readily soluble in water, forming a yellow, but perfectly clear solution) is not precipitated either by chloride of sodium, or by two to three per-cent. solutions of cocaine. As compared with argentamine, which contains 6.35 per cent. of silver, and with argonine (four per cent. of silver), it is stronger than either, as it contains 8.30 per cent. of the element. But its most important quality lies in the fact that its application is perfectly unirritating and painless. Darier applied a five-per-cent. solution of the drug to a conjunctiva not previously cocainized, and observed no pain following its instillation. He thinks that protargol by its very marked penetrating qualities and by its antiseptic action, which is even more energetic than that of nitrate of silver or that of argentamine, but especially on account of its perfect harmlessness, and its insignificant irritating effect, when coming in contact with the conjunctiva and the cornea, merits to be tried methodically in ophthalmology in all cases where formerly nitrate of silver was employed.

Ichthyol in Pulmonary Tuberculosis. — Dr. Branthorme[4] recommends an alcoholic solution of ichthyol (one part of ichthyol to two of alcohol) thirty drops in water several times a day. The dose is increased daily by two drops till it reaches one hundred and fifty drops per day. Ichthyol is not only not injurious to the stomach, but even beneficial in cases of atonic dyspepsia. It is administered to patients in whom creosote is contraindicated. While the latter exerts its principal effect on local symptoms, the action of ichthyol is said to influence the whole organism. It is not only antibacillary in its effect, but, like arsenic, it exerts an effect on the digestive apparatus and on nutrition. It is probably best used when alternated with creosote.

Itching of the Skin in Icterus. —

℞ Ichthyol . . . . . 3 i–3 ii.
Spiritus } aa . . . . . 3 x.
Aeth. Sulph. }
M. et Sig. Rub outside. (Boulland).

Gingivitis in Smokers. —

℞ Salol . . . . . gr. xii.
Spir. Menth. pip. . . . . 3 x.
Tr. Catechu . . . . . gtt xlviii.
M. et. Sig. A teaspoonful in a half glass of warm water, as a mouth wash. (Vian.)

M. Meyer[4] (of Lyons) employs solutions of sodium salicylate (one drachm and a half to two drachms of water) as a gargle for plain as well as pseudo-diphtheritic sore throat. He uses a tablespoonful of the solution in half a glass of lukewarm water. It is said to relieve the painful sensation of constriction and to modify rapidly the inflammatory process.

[2] Münch. med. Woch., May 10, 1898.
[3] Centralblatt f. d. gesammte Therapie, June, 1898; France Méd.
[4] Annals de Méd. et Chir. Inf., June 1, 1898.

FOR CHILBLAINS. —

R Aristol	3 ii.
Collodion	3 iss.

M. et. Sig. For external use. (Therap. Monatsch.)

FOR TINNITUS AURIUM,[1] not dependent on any disease of the ear (even though there be a collection of cerumen), Model and Robin (*La Médecine Moderne*) employed successfully cimicifuga racemosa, which usually stopped the noise in the course of three days after the beginning of the treatment. The average dose was thirty drops *per diem*; it failed in cases that had lasted for over two years. The author considered the buzzing in the ear as due to a reaction of the auditory nerve, which is subjected to a direct or indirect irritation. Cimicifuga racemosa, which is known to act as an antispasmodic in labor, also as a diaphoretic and somnifacient, as well as an efficient remedy in pruritus, exerts an influence on the circulation of the ear and on the reflex irritability of the auditory nerve.

ARSENIOUS ACID IN THE LOCAL TREATMENT OF EPITHELIOMA OF THE FACE. — M. Voron[2] presented a patient with an epithelioma of the face, which Jaboulay treated with the following mixture:

Acid arsen.	3 i.
Aquæ destil. } aa	3 ii.
Alcohol }	

The ulceration of six years' duration spread over the left temporal region, into its inferior part, toward the edge of the left brow, the size of a five-franc piece. The irregular borders permitted a view of the encroachment, the bottom was purple, secreting sanious pus. At the inner cathus of the right eye there was observed another point of ulceration, and this was touched by a solution of chloride of gold (1–100). The washings with the arsenic solution were made every day from March 12th to April 6th; cicatrization was progressing fairly well and the ulceration was reduced considerably in size. The patient treats himself at the present time. There is only left now a small ulcerated spot, of the size of a pin-head, secreting but little. The other ulceration disappeared entirely.

[1] Münch. med. Woch., No. 22, 1898.
[2] La Médecine Moderne, June 8, 1898.

Correspondence.

THE EFFECTS OF THE MAUSER BULLETS.

U. S. GENERAL HOSPITAL, FORT MONROE, VIRGINIA.
July 25, 1898.

MR. EDITOR: — There is and has been so much written concerning the terrible wounds made by the Mauser bullet that it occurs to me to send you a short account of the effects of this bullet as I have seen them. We have here in our hospital and hospital tents almost five hundred men. We have about three hundred men who have been wounded by the Mauser bullet. So far but one man has died from his injuries. This was a case where the bullet entered the neck, passed downward wounding the left subclavian artery, fracturing the first rib, and came out through the scapula.

This man walked unaided when he came ashore from the transport. The wounds were healed but there was a very large aneurism completely filling the triangle. The left arm was paralyzed and it was impossible to be certain as to there being a slight impulse in the left radial at the wrist. The man was suffering intense pain and it was decided to operate. Unfortunately the poor fellow died on the table. The post-mortem revealed the fact that the first and second parts of the subclavian were torn. All of the wounds made by the Mauser bullet look more like holes made by a small gimlet than anything else. The points of exit are a very little, if any, larger than the points of entrance.

It is very strange that among all these wounded men there is not a single example of the terrible havoc said to have been caused by this bullet. Some of our army officers say the reason why these wounds are so simple is because the Spaniards use such poor powder. Another explanation given is that the execution done by the Mauser and the Krag Jorgensen depends upon whether the man hit is within what is termed the explosive range of the bullet. These men must have been hit at all ranges. Accept whatever theory you wish, the fact is that here are about three hundred men wounded by the Mauser bullet and not a single incidence of this terrible havoc, and pus is an unknown quantity here.

There are several cases where the bullet has penetrated the anterior chest wall, passed through the lung and come out behind. The patients have coughed a little blood but otherwise have not appeared to suffer in the least. In some cases the bullets have entered the back of the neck, passed down the entire length of the back along the spine and come out opposite the lower lumbar vertebræ; the point of exit a very little larger than the point of entrance and scarcely any tenderness along the track of the bullet.

There are other cases where the bullet passed through the bones of the tarsus, the femur, or humerus, simply boring a small hole. In one remarkable case the bullet entered the temple, passed behind the orbit, and came out on the other side. The sight is gone from the eye on the side of entrance of the bullet, but otherwise the man is all right. I could mention case after case, some of them abdominal ones, where the recoveries seem almost like miracles. Since I began to write a surgeon who came from the front to-day sat down beside me; I asked him if he had seen many wounded by the Mauser bullet. He stated that he had seen over six hundred wounded men and in nine cases out of ten he could not see any difference between the point of entrance and the point of exit, and that with the exception of a few compound fractures the wounds did not present any of these terrible features. I think the men who have said so much concerning the terrible havoc caused by the Mauser bullet have not seen many wounds caused by this bullet.

ROBERT E. BELL,
Surgeon U. S. Army.

METEOROLOGICAL RECORD

For the week ending July 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	We'th'r.* 8.00 A. M.	We'th'r.* 8.00 P. M.	Rainfall in inches.
S...17	30.05	70	78	63	49	89	69	N.W.	S.W.	6	12	F.	R.	
M..18	30.10	74	83	66	61	79	70	E.	S.	5	4	O.	C.	
T...19	30.00	76	84	69	84	91	88	S.W.	W.	18	5	O.	O.	.43
W..20	29.94	78	84	71	88	75	82	S.	E.	7	6	O.	C.	.03
T...21	30.00	80	91	68	78	92	85	W.	E.	6	10	F.	O.	.34
F...22	30.21	68	72	61	78	90	84	N.E.	S.E.	16	5	O.	F.	
S...23	30.32	65	69	61	80	86	83	N.E.	S.	12	10	O.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 23, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping-cough.	Diphtheria and croup.
New York	3,438,899	1486	818	32.69	10.15	27.16	1.89	1.54
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	523	214	25.84	8.55	19.76	.95	3.80
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	251	114	32.37	4.68	25.35	.39	4.29
Boston	517,732	155	46	9.10	10.40	3.90	—	2.60
Cincinnati	405,000	104	—	14.55	13.58	11.64	—	.97
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	123	65	33.31	4.05	20.25	2.43	8.91
Washington	277,000	114	42	15.62	11.36	10.65	—	.71
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	60	22	29.88	4.78	21 58	6.64	—
Worcester	105,050	29	13	31.05	3.45	20.70	3.45	—
Fall River	98,919	—	—	—	—	—	—	—
Nashville	87,754	23	5	8.70	4.35	8.70	—	—
Lowell	87,193	49	23	24.48	2.04	22.44	2.04	—
Cambridge	86,812	28	16	39.27	10.71	28.56	—	—
Lynn	65,220	14	2	7.14	21.42	—	—	—
Charleston	65,165	48	14	27.04	6.24	14.56	12.48	—
New Bedford	62,416	30	17	29.98	9.99	29.66	—	—
Somerville	57,977	—	—	—	—	—	—	—
Lawrence	55,510	31	22	77.52	6.46	74.29	—	—
Springfield	54,790	20	10	35.00	—	30.00	5.00	—
Holyoke	42,384	18	13	44.44	11.11	44.44	—	—
Salem	34,062	3	0	33.33	—	—	—	—
Brockton	38,853	—	—	—	—	—	—	—
Malden	32,894	8	0	25.00	—	—	25.00	—
Chelsea	32,716	16	—	12.50	6.25	6.25	—	6.25
Haverhill	31,406	11	1	9.09	27.27	9.09	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	29,000	—	—	—	—	—	—	—
Fitchburg	28,392	8	0	12.50	25.00	12.50	—	—
Taunton	27,812	13	5	15.38	7.69	15.38	—	—
Quincy	22,562	5	3	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	4	2	25 00	25.00	25.00	—	—
Everett	21,575	6	1	—	—	—	—	—
North Adams	19,135	1	0	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,388	9	8	44.44	11.11	44.44	—	—
Brookline	16,164	6	0	—	—	—	—	—
Medford	15,832	2	2	50.00	—	—	—	—

Deaths reported 3,218: under five years of age 1,488; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 911, consumption 286, acute lung diseases 205, diarrheal diseases 723, diphtheria and croup 61, whooping-cough 53, typhoid fever 32, cerebro-spinal meningitis 14, measles 11, scarlet fever 14, erysipelas 5. From typhoid fever Philadelphia 6, Washington 5, New York and Boston 4 each, Baltimore and Pittsburg 3 each, Providence 1. From cerebro-spinal meningitis New York 9, Baltimore, Cincinnati, Lynn, New Bedford and Medford 1 each. From scarlet fever New York 8, Pittsburgh 2, Philadelphia, Baltimore, Cambridge and Lawrence 1 each. From measles New York 8, Baltimore, Cincinnati and Washington 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending July 16th, the death-rate was 14.7. Deaths reported 3,159; acute diseases of the respiratory organs (London) 175, diarrhea 122, whooping-cough 83, measles 79, diphtheria 54, scarlet fever 24, fever 16.

The death-rates ranged from 8.7 in Portsmouth to 22.9 in Newcastle-on-Tyne; Birmingham 12.9, Bradford 14.7, Croydon 9.2, Gateshead 12.6, Hull 12.9, Leeds 14.5, Leicester 12.0, Liverpool 18.8, London 14.1, Manchester 19.0, Nottingham 13.7, Sunderland 18.1, Swansea 16.4, West Ham 12.7.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JULY 28, 1898.

BAILHACHE, PRESTON H., surgeon. Granted leave of absence for six days from July 18, 1898. July 15, 1898.

PURVIANCE, GEORGE, surgeon, Chairman of Board of Examiners. To proceed to Port Tampa, Fla., for the examination of officers of the Service preparatory to promotion. July 26, 1898.

GODFREY, JOHN, surgeon, Member of Board of Examiners. To proceed to Port Tampa, Fla., for the examination of officers of the Service preparatory to promotion. July 26, 1898.

CARTER, H. R., surgeon. To proceed to Fort Monroe, Va., for special temporary duty. July 22, 1898.

CARMICHAEL, D. A., surgeon, Recorder Board of Examiners. To proceed to Port Tampa, Fla., for the examination of officers of the Service preparatory to promotion. July 26, 1898.

GLENNAN, A. R., passed assistant surgeon. To report to Chairman of Board of Examiners at Port Tampa, Fla., for examination to determine fitness for promotion. July 26, 1898.

WASDIN, EUGENE, passed assistant surgeon. To report to Chairman of Board of Examiners at Port Tampa, Fla., for examination to determine fitness for promotion. July 26, 1898.

BROOKS, S. D., passed assistant surgeon. To proceed to Point Pleasant, N. J., for special temporary duty. July 23, 1898.

WHITE, J. H., passed assistant surgeon. To report to Chairman of Board of Examiners at Washington, D. C., for examination to determine fitness for promotion, July 20, 1898. To proceed to Fort Monroe, Va., for special temporary duty. July 21, 1898.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Fort Monroe, Va., for special temporary duty. July 21, 1898. To proceed to Port Tampa, Fla., for special temporary duty. July 25, 1898.

CUMMING, H. S., assistant surgeon. Relieved from duty at Immigration Depot, New York, N. Y., and to report to commanding officer of the U. S. Marine Hospital at same port for duty. July 18, 1898. Re-assigned to duty at Immigration Depot, New York, N. Y. July 25, 1898.

CLARK, TALIAFERRO, assistant surgeon. Upon being relieved by Sanitary Inspector R. E. L. Burford, to rejoin station at South Atlantic Quarantine. July 20, 1898.

SOCIETY NOTICE.

AMERICAN CLIMATOLOGICAL ASSOCIATION. — The Fifteenth Annual Meeting will be held at the Maplewood Hotel, near Bethlehem, N. H., on August 31st and September 1st, 1898. The following programme has been arranged:

Opening Address. — August 31st, 10 A. M. By the President, Dr. E. O. Otis, of Boston. Subject. — Arenbrugger and Lænnec, the Discoverers of Auscultation and Percussion.

Common Errors of General Practitioners in Dealing with Cases of Pulmonary Tuberculosis. By Dr. F. I. Knight, of Boston.

Note on the Position of the Lower Border of the Heart. By Dr. Glentworth R. Butler, of Brooklyn.

A Case of Dissecting Aneurism of the Thoracic Aorta Rupturing into the Pericardial Sac and Causing Immediate Death. By Dr. Judson Deland, of Philadelphia.

The Influence of Respiration on the Action of the Heart in Health and Disease. By Dr. R. G. Curtin, of Philadelphia.

Suggestions: The Result of Recent Experience with Phthisical Patients. By Dr. Vincent Y. Bowditch, of Boston.

In the afternoon at two o'clock the Association is invited to a drive to the "Profile," by the courtesy of Dr. C. F. McGahan.

September 1st. 9.30 A. M. to 1 P. M. Clinical Notes on Asthma and its Treatment. By Dr. Beverley Robinson, of New York.

Ergot in Chronic Malaria. By Dr. A. Jacobi, of New York.

Preliminary Report of Seventy-five Cases of Malarial Fever and Their Relation to the Course of Certain Brooks. By Dr. R. C. Newton, of Montclair.

Concerning the Natural History of Pulmonary Tuberculosis. By Dr. J. C. Wilson, of Philadelphia.

Oxygen Inhalations in Acute Pulmonary Affections. By Dr. Andrew H. Smith, of New York.

Variations in Pathogenic Activity among Tubercle Bacilli. By Dr. Theobald Smith, of Boston.

The Treatment of Hay Fever. By Dr. J. C. Mulhall, of St. Louis.

Sanatoria for the Consumptive Poor. By Dr. J. M. Anders, of Philadelphia.

Infection from the Hands in Phthisis. By Dr. E. L. Baldwin, of Saranac Lake.

BUSINESS MEETING, 2.30 P. M.

Application of the X-Rays in the Diagnosis of Tuberculosis. By Dr. F. H. Williams, of Boston.

The Value of Systematic Physical Training in the Prevention and Cure of Pulmonary Disease. By Dr. E. Fletcher Ingals, of Chicago.

The Distribution of Pulmonary Tuberculosis in New Jersey. By Dr. Guy Hinsdale, of Philadelphia.

A New Inhaler. By Dr. H. Longstreet Taylor, of St. Paul.

A Single Test of the Virulency of Sputa Kept Many Months. By Dr. Irwin H. Hance, of Lakewood.

Some Statistics upon Serotherapy in Tuberculosis. By Dr. J. E. Stubbert, of Liberty, N. Y.

Papers are also promised by Dr. H. P. Loomis, Dr. S. G. Bonney, Dr. Charles E. Quimby and others.

GUY HINSDALE, M.D., Philadelphia,
Secretary and Treasurer.

Original Articles.

HOSPITAL SHIPS. THE "BAY STATE."

BY C. A. SIEGFRIED, M.D., NEWPORT, R. I.,
Medical Inspector, U. S. Navy.

THE care of the sick and wounded has in recent wars taken on exceptional importance, and at this time we find in the medical departments in all military and naval forces a fulness, variety and skill of equipment, both in material and personnel, that would astound those in control even twenty-five years ago; not to speak of the days of the Crimean War, from the horrors and inhumanities of which the civilized world recoiled, though the leading and at the time the most enlightened nations took part in it. Soldiers and sailors are no longer hirelings, they are directly and continuously from the people, and modern large forces are, to a great extent, schools for the bulk of their members.

In England and America, where the voluntary system of service still exists, the grade of the regular forces is perhaps not so near the general people, yet still the soldier and sailor are as well cared for, probably better, than in the armies and navies where the conscription or universal service holds.

It may be said that, from the period of the Crimean War, humanitarianism and the power of the forces of modern development compelled the beginning and continuous evolution of the arts and sciences of hygiene, medicine and surgery as applied to military and naval life; hence one can easily trace the gradual improvements in means, methods, the foresight and the growth in efficiency of their medical departments. So that now these departments are, as a rule, quite up to civil establishments; nay, more, there is a watchfulness exercised over soldiers and sailors regarding food and water supplies, disease causes and prevention, re-vaccination and general hygiene not to any extent customary in civil communities anywhere.

It must not be imagined that "hospital ships" are a present-time evolution, they are simply in evidence as the mark of progress in naval medicine and surgery. Their equipment and very apparent usefulness at this time is, however, striking. Owing to the great development of offensive power in modern warships, and the crowded complexity necessary, there has almost ceased to be room on board for hospitals; and once the list of casualties exceeds five per cent. of the personnel all attempts at surgical relief become a hopeless task. The usual space set apart for a hospital in ordinary times is in battle abandoned, the armored or protected sections alone at that time containing the crews—men and officers of all descriptions; so that the surgeons are equipped mainly for first-aid work, and must work as best they may and can, circulating about the fighting guns' crews or in their immediate vicinity. Operative procedures of the most pressing nature are alone to be attempted. Casualties in the proportion of from 20 to 60 per cent. must be expected in naval combats — from the history of such engagements during the past thirty years. Rapid fire and machine guns, in the hands of those knowing their use, in addition to the frightfully destructive effect of the modern explosive shell and penetrating power of the present naval ordnance, tend to end such battles within an hour; and in a ship's complement of 450 — the average number in a large cruiser or battleship — the state of affairs with a casualty list of 33 per cent., the general estimate now looked for in naval battles, can be easily imagined. The casualties in the recent engagements in Manila Bay and off the port of Santiago de Cuba, on the Spanish ships, were much above this figure, approximating nearer 60 per cent. in the majority of the ships. It is now known that the killed and wounded from the effects of a few of the single shells, in these battles, that reached the interior of crowded decks, numbered as high as seventy. There was one instance in the Yalu battle, between China and Japan in 1895, reported to the writer by Commander McGiffen, an American, who served in the leading Chinese battleship as second in command, where 102 men were placed *hors du combat* by one large exploding shell. A shell exploding produces at once a wide area of white fusing heat and flame, with an innumerable number of irregular missiles; these effects being exaggerated when the explosion occurs within confined decks, spaces and turrets. Supposing that a conflict were to occur between ships well matched in ship, men and ordnance, casualties mount up to 80 per cent., as has happened in a few instances. Probably the greatest slaughter of modern times occurred in 1879, when the Chileans with two ships took the Peruvian ship the *Huascar* (all ironclads). So that it can be readily seen that with fighting ships and fleets there must be ships equipped solely for hospital uses. There is no room on board a modern fighting ship or machine for an injured or sick man. All available space is consumed for purposes of offence and defence, and the intricate complexity of a typical and admirable ship of war must be seen to be appreciated.

For the past several years naval authorities have been reluctantly coming to the hospital ship for strictly naval uses, and at the Moscow International Medical Congress last year, the American naval delegate, the present Surgeon-General, Wm. K. Van Reypen, presented a paper on this subject, with detailed plans. It was hoped that sooner or later such a craft would be provided for our naval service. The present war hastened matters, and a fine mercantile steamer of 3,800 tons displacement was at once procured, and, being hastily fitted and equipped, reached the scene of active operations in Cuba to be of most important use, being at that time the only vessel of the kind ready.

She was placed temporarily at the service of the military arm of the government. Hospital ships for the use of armies when engaged in distant military enterprises may be more appropriately named transport ships, for their services may be radically different. Naval hospital ships, under the protection and neutrality of the Geneva Red Cross Convention Articles, must save and help both sides in a conflict, regardless of nationality, and keep the sea with the fleet to which they belong. The credit of early procurement, rapid equipment, and quick despatch of the naval hospital ship *Solace* rests with the Honorable Secretary of the Navy, Mr. Long, who at once seconded all the efforts and energetic steps taken by Surgeon-General Van Reypen. President McKinley approved the expenditure out of the fifty millions' war appropriation, and the *Solace* took shape. Several hospital ships are now proving their value, and as each successive one goes forth to succor and to

save, the experience gained bears fruit in many minor details in the equipment and fittings.

In the great French fleet, gathered by Richelieu in 1693, there were 190 ships of all classes, including three hospital ships. There were 7,654 guns and 44,700 men all told in this fleet. But this was an exception rather than the rule. In the China-Japanese war, at the battle of the Yalu, the latter power had present a well-equipped hospital ship, having recently transformed for the purpose a merchant steamer of about 3,000 tons. She did good service in that conflict, the wounded being transferred during and after the engagement. There are numerous hospital ships anchored in many colonial harbors, for both army and naval uses, but the complete hospital ship as we now understand the term in this country — an active, complete, self-sustaining vessel, thoroughly able to render competent and scientific medical and surgical aid, sailing under the Articles of the Geneva Convention — is distinctively an American creation of this present time, and the navy has gained the credit of being first in this beneficent field, with the sailing of

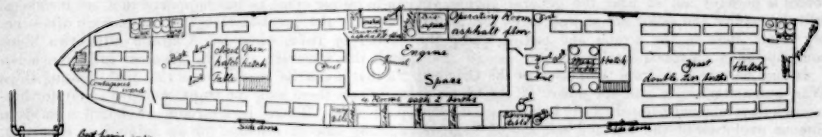


FIG. 1.

Bay State. Main hospital deck, general arrangement. Air ports, ventilating tubes, etc., not shown. Ice plant, cold storage, store-rooms and additional berths on deck below. Cabins, etc., of personnel on upper deck houses (galley, etc.); over all light flying deck.

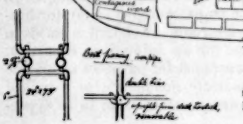


FIG. 2.
Stanchions and berth framing.

the *Solace*. The articles (VII to XV) of the Geneva Convention, relating to the Marine, were adopted in 1868. Aid must be rendered both sides, regardless of nationality, the ships being neutral, and men once rescued during battle are debarred from further activity as combatants for the war. Military hospital ships are distinguished by their white color with green strake (a broad stripe on each side); civil aid society ships with red strake on the white. They can carry no contraband stores, nor any means of offence or defence. When fitted at the expense of aid societies, a naval officer must certify that he has controlled and inspected their equipment and fitting out, and that they are in accordance with the terms of the Geneva Convention, and this officer is appointed by the sovereign or executive of the country under whose authority the ship is fitted out and commissioned.

An original design or model for a hospital ship would probably have more beam to length than is common in the merchant craft available, for the purposes of stability and easy motion at sea, and for more agreeable spacing of compartments. It is not essential to have great speed, as this involves the use of enormous space for machinery, increased heat, and exaggeration of vibration and noise. Fair speed, large coal endurance, an easy model, somewhat high between decks, and not too large a type of ship, are essential points. To answer her purpose well she must berth her patients conveniently and agreeably, with ample facilities for suitable dieting, good air at all times, pure water; a good ice plant with cold-storage rooms, an electric lighting system, a laundry, a steam disinfector; an operating and dressing room equipped with hot and cold running water, sterilizer, and the modern fittings, clinical laboratory, x-ray apparatus; ambulance appliances and apparatus, including boats by steam and barges; dispensaries, diet kitchens, lavatories, baths, water-closets; offices, store-rooms of all kinds; a carefully selected staff of physicians and surgeons, a pharmacist, nurses, cooks, and the usual attendants. A section must be set aside for isolation uses, and an infectious or contagious ward, complete in itself, must be provided, preferably on an upper deck well aft. The usual size of berths is 24x75 inches (28 inches width would be better). They should be made of iron piping one inch, with the upright stanchions running from deck to deck, on which the berths rest, of two and five-eighths inches; finished in white enamel. Various methods of construction are in vogue. The *Bay State* berths are very convenient and secure, the frame resting in deep hooks (at the four corners) encircling by a band the stanchions between every two berths, the space between the ends of the berths being several inches. It also allows of the whole berth being removed and transported bodily. Berths are in two tiers, with a passage of from 20 to 30 inches between the lines; the average cubic capacity or air space per berth, 250 cubic feet. Woven wire springs and hair mattresses, and side bars complete the berth.

Systems of ventilation are essential, and fan blowers, usually run by steam, are employed, though electricity is used for fans up to 24 inches diameter. The tubing or air ducts should extend throughout the structure below the main deck, and careful calculation and construction are necessary for success. Artificial ventilation in ships, I have no hesitation in stating, should be by the plenary method — *forcing air in* to the compartments and spaces needing ventilation. It is easily shown that really pure air is hardly attainable in a complicated structure, such as a ship is when the air is extracted, the distal parts necessarily getting the air which has filtered through the other compartments in reaching it — passing over decks, beds — more or less respired and robbed of its oxygen, and having accumulated dust and gaseous emanations. Most systems are arranged to work both ways. A fair maximum number of revolutions of the blower must be insisted upon and it must be kept running constantly.

Ice plants are not perfected to an extent desirable. The Allen patent, in use in naval vessels, of producing

cold by the alternate contraction and expansion of common air, is usually successful; and though in the tropics the capacity shrinks fifty per cent., the one ton machine (daily ice-making capacity plus cold-storage) answers an excellent purpose in the naval medium sized cruiser. The ammonia process is being improved rapidly, and is simpler than the compressed air patent. The ammonia ice plant in the *Bay State* will have a capacity daily of producing 5,000 pounds of ice (with tropical conditions), and preserving one cold-storage room of 1,386 cubic feet at 40°, and one of 630 cubic feet at 25° F. There will be an ice-storage of 230 cubic feet. It is the Hendrick machine and patents, and uses anhydrous ammonia and calcic chloride brine of a fixed specific gravity. It promises admirably and surpasses some of the ice plants in hospital ships of much larger tonnage and size now in service. In outside conditions of air and water, temperatures under 65° F., this capacity will be doubled. A feature of the construction here is the complete incasing of the machine proper in a one-fourth inch steel box containing separate pump, ventilating system, etc., to remove possible chemical *débris* — a constant annoyance usually. It is possible that ultimately liquid air may be utilized in refrigeration and ice making, but at present this substance, on passing into the gaseous state, is not practically controllable.

The apparatus to condense sea water, filter it, and furnish a pure fresh-water supply has a capacity of 3,000 gallons daily. This will provide an ample supply for all possible uses. Storage tanks containing several times that amount are also in the ship. Sea water is also supplied for baths.

The steam disinfector is set up adjoining the laundry. It can be charged from the deck, the sterile contents being then removed to the laundry. Its size is about 48x60 inches, capable of receiving two mattresses with complete bedding, etc., at once. The laundry is composed of a washer, wringer, and small engine, and will be competent to finish up in one day the hospital's bed linen, towels, cloths, etc.

The cooking is done on the spar deck (upper deck), and the food is sent down to the deck below — the hospital deck — by dumb-waiter. Serving tables, fitted up appropriately, and made of metal, with carefully devised shelving, lockers, etc., are conveniently placed to receive and distribute the food. The diet scale of the *Bay State* has been carefully gone over, and in most competent hands. It will include every luxury and necessary element to be found in the most liberal establishments, and is proportioned to the various messes on board, from the seamen, engineers' force, officers' messes and the patients' dietary particularly. Facilities to properly prepare all food substances are present in the very complete galley installed contiguous to the engine bulkhead on deck.

The electric lighting plant, dynamo and appliances are estimated on supplying about 200 lights of 16-candle power each. Electric fans to the number of about forty, with 12-inch fans, are provided. These were very kindly given, on the basis of one to every four patients. There is no question of the extreme usefulness and comfort to be derived from these admirable contrivances when in the tropics.

The baths are of good size (five feet two inches), of enamelled metal, and with the hand-bowls stand free, the former to be enclosed with canvas suspended from a rod overhead. An excellent compound valved supply stand-pipe will furnish hot, cold and salt water as desired. The slop-hoppers and water-closets are distributed in three localities, easy of access from the main berth sections. A hopper and siphon trap-bowl is affixed to the drain (directly through the ship's side), which has an additional valve at its exit. It is so arranged to be well above the water line. Ships' water-closets are not by any means perfected contrivances when placed at or near the external water-line; and, though there are many patents and kinds in use, they do not, as a rule, function well without a vast amount of looking after.

The *Bay State* will have one "alba naphtha" launch, of 30 feet length, and four pulling boats of 24 feet length, and one of 12 feet. The launch will be able to tow the boats in transporting patients, and carry on the daily work between ship and shore when in port — mails, marketing, stores, etc. The cots and stretchers to be supplied can be placed in the pulling boats when containing patients, and on arrival along side the ship, the booms fitted to each mast, with convenient tackle, will readily lift cots with patients to the side doors and into the ship. Other ambulance appliances will include some "Lowmoor jacket stretchers," United States Navy cots and stretchers. The jacket stretcher retains firmly in any position a patient by means of broad canvas bands across the chest, under the arms, under the perineum, buckling to the two coming over the shoulders, and transversely over the legs. With a willing and earnest staff, such as the *Bay State* will possess, the transfer of patients can give no anxiety.

The operating-room, though small, will satisfactorily accomplish its purpose. It is supplied with sterilizing apparatus (Kny Scheerer make), an x-ray apparatus, hot and cold water, a fixed, operating, metal table, sufficient shelving, lockers for instruments and the usual appropriate surgical gear. The floors of this room, disinfecting room and laundry are of asphaltum, draining to the usual outboard scuppers and waterways, common to the whole hospital deck alongside the skin of the ship. The air ports or deadlights will during daylight furnish sufficient light, and the electric light will supplement it. A small clinical laboratory outfit is also provided.

The personnel of the *Bay State* will consist of about 48 people. The deck and engine force gives a total of about 22; the stewards, cooks and attendants of about 8; and the purely medical and surgical side of about 18. There is the purser, the man of business and accounts. The principal medical officer will be the surgeon superintendent, Dr. Herbert L. Burrell, assistant professor of surgery in the Harvard Medical School. He will have the aid of four assistant surgeons. There will be six female nurses and six baymen (competent nurses and attendants); all have been carefully selected, and have promised to serve for three months, signing the usual shipping articles of agreement to that effect. The commanding and directing head of the ship is the surgeon superintendent, subject only to the navigating officer, Captain Butnam, upon questions of navigation or control when the safety and well-being of the vessel may be threatened. The executive committee of the Massachusetts Volunteer Aid Association finally governs the general direction and objects sought to be attained by the ship.

It may be interesting to compare costs of hospital

ships, calculating them to the unit of fixed berth. From what has gone before in the acquirement, equipment, rearrangement and outfitting of these self-sustaining hospital and ambulance craft, it is well known that they are complex, liable to failure at important points of detail, and very expensive. We are, in fact, evolving satisfactory hospital ships at this present time. It is a new art and with each ship definite points of improvement in details are pointed out. Ice plants fail, ventilation becomes faulty, dynamos need replacement, the personnel needs rearrangement, and some questions arise in placing of berths — spacing, dimensions, securing them — and kinds of materials. Transportation of patients is also a matter of experience. Much depends upon the kind of work to be done. Surgical cases may shortly disappear, and the ship's berths be crowded with purely medical cases — malaria, typhoid, dysentery and heat effects. However, it is the recognized part of a hospital ship to be equipped for all manner of medical and surgical work, at all times.

A vessel of 4,000 tons displacement, in this country, if new or nearly so, costs at least a half million dollars. Her equipment and fitting out as a hospital ship will then foot up from $60,000 to $75,000. She will have a company, complete in all departments, of not less than 100, probably 120. With crowding she may have 350 fixed berths, with a maximum capacity of possibly 400. At this rate the cost will be about $1,640 per fixed berth. The ships now afloat have cost much more, approximating more nearly to $1,900 per berth, whilst the rearrangement from mercantile and passenger uses has not been as complete and satisfactory as was desired because of urgent need for hospital and military purposes. The *Solace* was in good time, was on the spot during the first battles of the war. She has wooden-framed berths, an additional ice machine has been added, and she carries her honors handsomely, even though she was rushed day and night when fitting out. When the first hospital ship is designed and constructed, from the first keel plate as such, then may we expect to see probably a more perfect and complete craft.

The *Bay State* will be admirable (for her size), and distinctly possesses some superiorities. She is but 200 feet long, 27 feet maximum width, single screw, bark rigged, 780 tonnage displacement, is built of three-eighths-inch steel (Scott & Co., Bowling, Scotland, 1886), and is rated 100, A. I. Speed, 12 knots; draft, 14 feet; steaming radius, 3,000 miles. She was owned by the Boston Fruit Company, and was sold to the Massachusetts Volunteer Aid Association for $50,000. Her fitting out and virtual internal reconstruction will cost about $60,000, making a total of $110,000, or cost per fixed berth of about $1,200. She is not palatial, but she possesses solid advantages and comforts for her work, and no ancient upholstery or useless wooden fittings. Her hospital deck compartment is new work, mainly metal, and she is virtually aseptic. The space is given up for patients' needs and uses, while the personnel on board, for the charge and care of them, are far from being housed and berthed luxuriously.

It is to the credit of Massachusetts, to her cultivated and patriotic citizens; and to the medical profession here — who give all their services eagerly and gratuitiously — that the State has the noble distinction of being the first civil community anywhere to send out at its own expense a complete hospital ship for the humane uses of all the men, naval and military, who are bearing arms for our common country.

SIR ASTLEY COOPER, BART.[1]

An Estimate of his Character and Career.

BY JAMES G. MUMFORD, M.D., BOSTON,
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One of the most interesting and picturesque figures in all surgical history is that of Astley Paston Cooper. Well born and bred; highly gifted both mentally and physically; of enormous industry and ambition; living at a time of revolutionary changes in the world's history — changes social, political and intellectual — he was a fit contemporary of such men as Fox and Canning and Mirabeau and Hamilton — less mercurial than the first and only less brilliant than the last.

Somewhat younger than those distinguished men, he was brought under the same great influences; and though he died near the middle of the present century, he had known Dr. Johnson, had heard Hunter, had seen Robespierre and George III, had experienced Waterloo, and had lived to be honored by the Citizen King. Whatever there was in life for the finding, that Cooper found, and amid all the changes and chances of an extraordinary era he is seen always steadily advancing.

Astley Cooper was born on the 23d of August, 1768, one year before the great Napoleon. In France old Louis XV was living; in Germany Frederick was resting on his laurels; in America Washington was an obscure country gentleman, and in England George III was still a young king. There was peace at home and abroad, though the great undercurrent was already at work, destined to overturn the geography and dynasties of the world. Of all the peoples about to become embroiled in this turmoil, the English and Americans alone were to emerge with added strength; and parallel with the fluctuating but always advancing fortunes of his people, Cooper's life developed in vigor, resourcefulness and success.

A great deal has been written and said about this man, but I do not find that his true significance has been appreciated. He was not a hero; perhaps not one of the world's great men; but like a few others of that day, he early felt the import of what was being done by the wide forces behind men, and in his own sphere of life he grew to typify the revolution in which he lived.

Great changes in politics, philosophy, literature and science do not come suddenly, full grown, as we know. It is evolution that leads to what men call revolution. Rousseau preceded Jefferson; Descartes preceded Darwin, and John Hunter preceded Astley Cooper.

The traditions which lay behind and surrounded the young Cooper were certainly not of a kind to develop his natural genius. His ancestors belonged to the country gentry class; his father was an excellent clergyman of independent fortune, his mother a fond, sweet woman who wrote moral poems and tales for the young and found a publisher. He was born a younger son to this couple at Brooke, in Norfolk.

[1] Read before the Historical Club of Johns Hopkins Hospital, May 9, 1898.

There, and later in Yarmouth, he grew up a wild, generous, mischievous, brilliant boy, the plague and astonishment of his parents.

I find no tales of him that presage his later fame. His dull and pompous nephew, Bransby Cooper, has written a life of him, and tells of how he applied a tourniquet to the thigh of his young foster brother, who had been injured and was bleeding from the femoral artery. A chapter is devoted to this scene and there is much feeble wagging of heads; but I doubt not that boys other than embryo great surgeons have done the same before and since.

This young Astley was forever in scrapes and would have none of books. The practical jokes of the day were brutal enough, and of them he had his share. Such tales are but dull to hear.

So he grew up, wild, ungoverned and unread, but kind and gentle toward all women and young children. In the course of time his brothers, steady persons, well instructed by the good scholar their father, went their ways to the university. For him there was nothing in life of that sort, and it was not until his uncle, William Cooper, from London, a surgeon of repute, came down to visit at the parsonage, that a clear path became open to him.

The anxious father was only too glad to find some congenial employment for the exuberant son, and so with many anxious prayers and solemn blessings from his elders the lad was sent to London to make his way.

Astley Cooper was sixteen years old when he began the study of medicine. His preparation was slight enough; a little Latin and mathematics, a smattering of French and a good constitution were his stock. He had read little and never became a reading man. Like Hunter, Hume, Brodie and many others, he would learn all things for himself, and cared little for the written thoughts of others — ancients or moderns. It was a sign of the times; men were finding out the facts of life for themselves and cared little for knowledge at second-hand.

Here is a description of his outer man, in the stately words of his biographer: "His manners and appearance at this time were winning and agreeable. Though only sixteen, he was tall and finely proportioned, healthy and manly, with a countenance handsome and expressive. His talk was brisk and animated, his voice and manner pleasing and well-bred. He was graceful and agreeable, popular in society, and always greatly influenced by women." This is a pleasant picture, and one sees him the young Apollo indeed.

Cooper had the rare good fortune to be placed as articled pupil with one of the greatest surgeons of his time — Henry Cline. The uncle who had brought him to London seems to have been a jealous and uncomfortable person, and readily parted with his tempestuous kinsman.

Cline was an interesting man. At this time, 1784, the American war had been concluded, and those democratic principles, which had gained such headway in France, were professed in a milder degree by great numbers of liberal Englishmen. Cline was always an advocate of such views, and was at this time intimate with the celebrated Horne-Tooke and with Thelwall. To such a band was joined young Cooper, who eagerly adopted their views, and so pained beyond expression his anxious friends at home.

It is evident to one following his course that his whole trend of thought and endeavor were strongly influenced by such pursuits, and though, like most Englishmen, he fell back in later life with the strong conservative tide setting against all things French, still the broad manner of thinking which he early learned colored always his subsequent career.

Cline cared much for all these things, but that did not prevent him from being a sound surgeon and an accomplished teacher. He was eighteen years Cooper's senior. In later years, Sir Astley wrote many comments on men he had known, and this is what he says of Cline in one place: "In surgery he was cool, safe, judicious and cautious; in anatomy, sufficiently well informed for teaching and practice, but he lacked industry and professional zeal. He was gentle, firm, mild, unruffled." This is pleasant, but not high praise. Cooper had high ideals, and after middle life, when phenomenal success had established his own confidence and self-esteem, he was never lavish of praise for others.

But Cline's political friends were not his only associates. He knew well and appreciated John Hunter. To that remarkable man his young apprentice was soon introduced, and the teachings of the great scientist at once captivated and engrossed the youthful scholar.

Of the method of Hunter I need say but a word. It was a method as old as that Babylonian Zadig, of whom Huxley tells the story. It was what we call the inductive method. But what Hunter did was to apply it faithfully, unselfishly, unfalteringly to biological science and the study of medicine; until, in spite of opposition, hatred, contempt and ridicule, he placed these studies, and the men who profess them, in that dignified and ennobled position before the eyes of the world which a hundred years have only increased and strengthened.

Cline appreciated him, and this is what he says of him: "Having heard Mr. Hunter's lectures on the subject of Disease, I found them so far superior to everything I had conceived or heard before that there seemed no comparison between the great mind of the man who delivered them and all the individuals, whether ancient or modern, who had gone before him." Cooper himself later said of Hunter: "Mr. Hunter was, as Lavater said, *a man who thought for himself*, but he was more; he was the most industrious man that ever lived." Here is an anecdote which Cooper tells of Hunter, who was often slipshod and indifferent in practice, in spite of his enormous knowledge: "Mr. Howden had a patient with an obstinate running sore whom he brought to Mr. Hunter for consultation. They went into Mr. Hunter's room and the case was explained. Mr. Hunter folded his arms and said: 'And so, sir, you have an obstinate running sore?' 'Yes, sir.' 'Why then, sir,' said Mr. Hunter, 'if I had your running sore I should say,— Mr. Sore, run and be damned.'"

Cooper early perceived (and it was a knowledge he received from Hunter, not from Cline) that a thorough knowledge of anatomy was at the bottom of all successful surgery. Before his day there was no anatomical study and instruction as we know it. There were some anatomists, but they were not to be found among the ordinary students and practitioners of surgery.

Mr. Cline was surgeon to St. Thomas's Hospital, and it was in the schools of the United Borough Hospitals, St. Thomas's and Guys, that Cooper received

his education. The amount of time that he put into anatomical studies would be impossible to students of our day, with their elaborate curriculum and carefully regulated hours. In those days there were no graded courses. Certain lectures on anatomy, surgery and medicine were held, and bedside teaching was given; but until the time came for going into practice the young men were allowed to dispose of their hours as they pleased, so far as the school was concerned. It was over the articled pupils only that any real control was exercised, and these were always the men who rose to position and influence in after life.

To Astley Cooper the study of anatomy meant not only the normal dissections, but pathological dissections and comparative anatomy. From the second term of his medical studies until the day of his death, his industry in all these lines was enormous.

To rise at four, to dissect for two hours before breakfast, to demonstrate for his fellow-students all the morning, to hear lectures and assist at autopsies until dinner and to dissect again until near midnight — these were for many years his regular occupations.

The various and fascinating lines of research which engross students to-day were mostly unknown a hundred years ago. Microscopy was in its infancy, chemistry was crude, bacteriology and all its attendant interests were of course undreamed of, so that the patient and thorough student confined himself mostly to gross inspections in the case of human pathology, and to the investigation of phenomena in animals living and dead.

It is marvellous to what a degree of accuracy those men trained their unaided senses. Without the microscope, the culture tube, the stethoscope or the thermometer, those differentiations known to us were impossible. But students made the most of their few talents and the great collections of Hunter, Cooper and others bear witness to the enthusiasm and wide range of their inquiries. It was in their observations on the structure of the lower animals that both of these men excelled and outstripped their contemporaries. Hunter did not stop at the dissection of a whale, and Cooper had a dead elephant brought to his own house and worked upon it in his court-yard. Both secured the reversion of animals that died in the collection at the Tower, and found in this a perfect mine of material for their work.

As Cooper grew into practice he never allowed anything to interfere with such daily avocations. When patients thronged to him in the morning he put them off until his consulting hour of eight o'clock, so that the time between five and seven might be devoted uninterruptedly to anatomy and pathology. He made one great collection which he gave to St. Thomas's, and later, when the schools were separated, he plunged with renewed ardor into the formation of a museum for Guy's; and before his death this too had grown to great size. In these pursuits there was no rest for his assistants. He knew good men and how to make use of them, and was able to inspire them with his own enthusiasm. If an autopsy was desirable it must be obtained; if a strange animal was heard of it must be brought to him for dissection; if a lecture was to be given it must be illustrated by specimens from his own museum, and if his collection was at fault the lack must be made good. Wherever he went he studied and investigated; when at home with his parents he haunted the shop of the local chemist; when travelling abroad for pleasure he spent his time in museums, hospitals and dissecting-rooms; when at his place in the country he tried vivisection experiments on his own pointers, and stopped to dissect the very birds that he shot.

In 1834, when he was sixty-six years old, he made an extended tour on the Continent, and from notes in his diary we find the sort of busy man he was:

"Paris, Oct. 7th. At half-past ten I called upon M. Dupuytren. He was ill. I found him with loaded lungs and a quick pulse, 140, short breathing and with a sunken countenance. . . .

"Dupuytren has provided me with all I wish for as to the cadavers.

"Oct. 8th. Rose at six and went with Dr. Marx to see the provision Dupuytren had made for my dissecting. We went to the Hotel Dieu, and I found a room devoted entirely to myself. A cadaver there. I dissected for nearly two hours before breakfast, and afterwards for four hours, between ten and two o'clock.

"Oct. 9th. Dissected from ten until one. . . .

"Oct. 11th. Went to the dissecting-room but found they had removed my subject."

He never rested, and I doubt if he could have been a very comfortable person with whom to live; but his friends loved him and from the very first he secured the enthusiastic admiration of his contemporaries in the profession.

Poverty never came to burden or to stimulate Astley Cooper. In his student days he was comfortably supported by his father, and in the beginning of his practice he married a wife with a fortune. The unceasing anxiety and effort to make a fair living which submerges and drives to the wall so many brilliant young professional men did not come to him. He never knew the maddening anxiety of waiting for a practice, and even in the height of his career he subordinated his patients to his teaching.

(To be continued.)

Clinical Department.

ORBITAL INJURY FROM CONTRE-COUP.[1]

BY FREDERICK E. CHENEY, M.D.,
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The expression, injury from contre-coup, though most often used in connection with cranial lesions, is, of course, equally applicable to an injury to any part of the body where the conditions fall with the definition of this term. "Contre-coup, or counter-stroke," is defined by Foster as "the transmitted commotion manifested at a certain point in the body when a blow is received at a distant or opposite point." This definition is probably the generally accepted one. The term may be especially well applied, it seems to me, to certain injuries of the orbit, resulting from a blow on the orbital margin, producing comparatively little effect at the point of impact, but followed by deep intra-orbital lesions of more or less serious nature. In the orbital, as in the cranial, cavity, a hemorrhage, an abscess, and perhaps also a fracture of the bony wall may follow such a blow, and in like manner the situa-

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 6, 1898.

tion of the lesion can at times be demonstrated with a considerable degree of accuracy by noting the effect of nerve pressure in the muscles which they supply.

A fracture through the apex of the orbit, as a result of a blow on the orbital border, is not of extreme rarity and there may be little in the history or symptoms to indicate that a fissure extends from the point of impact backwards. It is probable, however, that in a large proportion of such cases fissures do exist, and they cannot, of course, be regarded as fractures from contre-coup, although the structures at the apex seem to be the only ones seriously involved. A case in point is that of a boy who was seen four days after being thrown down by another boy, striking the left eye on a horse-car rail. He was unconscious for about an hour, but there was no bleeding from the nose, mouth or ears. The eye was found to be completely blind when he regained consciousness. Upon examination the condition was as follows: ecchymosis of both upper and lower lids and of the ocular conjunctiva. There was no emphysema, no abrasion of the skin. Moderate ptosis existed, and motion in all directions was very limited. There was slight exophthalmus, but no more than could be accounted for by a paralysis of all the ocular muscles. Pupil dilated and reacted neither to light nor accommodation. Vision absolutely lost, there being no perception of light. The transparent media were perfectly clear. The retina was edematous and the seat of numerous hemorrhages, especially marked in and around the macular region and the borders of the disc were slightly indistinct. The condition resembled very much the appearance that results from a sudden obstruction to the retinal circulation. The case was kept under observation for about six weeks and when last seen the ptosis had nearly disappeared. The movements upward, downward and outward were about normal, but still defective inward. There was at no time perception of light. A paralysis of all the ocular muscles after such an injury would, of course, indicate a lesion at the apex of the orbit and the ocular symptoms, the complete blindness and fundus changes, could be best accounted for in this connection by a fracture through the optic foramen with pressure on the optic nerve and perhaps also the ophthalmic artery. There is certainly nothing to indicate the extension of a fissure backward from the orbital border, but it is, of course, impossible to say with any degree of certainty that such a condition did not exist.

A case that illustrates especially well an injury from contre-coup is the following: the patient, a little girl, was seen at the Massachusetts Charitable Eye and Ear Infirmary, October 13, 1890. Two weeks before she was struck under the left eye with a small stick. A few hours after the blow it was noticed that the left upper lid began to droop, and after a little it completely covered the eye. As far as could be learned, the blow was not a severe one. There had been no redness of the eye and little, if any, pain. The point of direct injury was indicated by a slight abrasion of the skin nearly healed at about the centre of the lower orbital border. There was no tenderness on pressure at any point. The ptosis was found to be complete. The eye moved freely in every direction, no exophthalmus and no injection or ecchymosis of the ocular conjunctiva of the lids. The pupil was of good reaction, the accommodation active, and the ophthalmoscopic examination negative. There was a small opacity of the cornea and a posterior synechia, which may or may not have resulted from the blow. The ptosis began to improve after she had been under observation for about a week, and within a short time disappeared completely. The question of localization, in this case, is not a difficult one. It is, I think, safe to conclude that the branch of the third nerve supplying the levator palprebræ superioris was the tissue injured, and not the muscle itself. A contusion of the muscle at some point might, of course, give rise to defect in motion, but it is hardly possible that a complete paralysis could result unless it had been very extensively lacerated. It is to be remembered that the upper division of the third nerve extends from the sphenoidal fissure inward over the optic nerve. Of its two branches, one goes to the superior-rectus, the other passing through it or to its inner side, breaks up into a number of branches and enters the under surface of the levator near the junction of its posterior and middle third. An injury of the levator branch of the third nerve would, therefore, localize the point of counter-stroke at the upper and a little to the inner side of the optic nerve within the muscular cone, not far in front of the optic foramen and nearer the inner than the outer orbital wall. Another point in connection with the case which it will be of interest to consider briefly is the nature of the lesion. The fact that the ptosis did not develop immediately and that it gradually became more complete after it was first noticed would make it seem probable that pressure on the nerve fibres, and not a laceration, was the cause of the paralysis. This pressure may, of course, have resulted from a hemorrhage or swelling of the surrounding orbital tissues, although the absence of conjunctival ecchymosis would certainly exclude a hemorrhage of any extent, and it would be hard to understand such a condition remaining so extremely local. The most probable theory, it seems to me, is that there was a slight bruising of the nerve followed either by a serous exudation or a small hemorrhage into its sheath. These cases of ptosis, without other ocular paralysis, following blows on the orbital margin are not common, but I have recently seen another case through the kindness of Dr. Walton. In his patient, the ptosis, which followed a blow from a ball, was not complete but had persisted for about six months; there was little probability, therefore, of its spontaneous disappearance.

In a second case which came to the Infirmary July 7, 1890, the counter-stroke seems to have been received at about the same point as in the preceding one, but the injury was of a much more serious nature. The patient was a boy fifteen years of age. Two weeks before while at play, he received a sharp blow over the left eye from a stalk of rhubarb. There was considerable pain directly after the injury but it soon ceased and nothing more was thought of it until the following day when it was noticed that the upper lid drooped and there was some redness and watering of the eye. The redness disappeared in a day or two but the condition of the lid remained unchanged. Seven or eight days after the injury it was discovered for the first time that the left eye was more prominent than the right. When examined by me, the ptosis was found to be complete and there was marked exophthalmus. The ocular movements were good laterally and downward but very defective upward. There was no redness, abrasion, swelling or ecchymosis of the brow, lids or globe or other symptoms that

would suggest a recent injury. The pupil was of good size and reaction, the transparent media clear and the fundus normal. There was no tenderness, on pressure, at any point along the orbital border or of the globe. The vision was nine-tenths of the normal and was not improved by glasses. The right eye was normal in every respect. The boy was said to be perfectly well with the exception of his eye trouble and there was nothing in his general appearance to indicate the contrary. When seen three days later the exophthalmus had decidedly increased, the ocular movements were more limited in all directions and the vision had fallen to less than two-tenths. There was still no edema or ecchymosis of the lids or conjunctiva and no headache, nausea or other signs of general disturbance. The ophthalmoscopic examination showed well-marked optic neuritis with a prominence of the disc and complete obliteration of its borders. The retinal veins were congested and tortuous, but there were no hemorrhages.

The development of optic neuritis in connection with the greater degree of exophthalmus at this date furnished unmistakable evidence of an increase in the post-ocular pressure, and the fact that the vision had fallen off from nine-tenths to two-tenths within three days left no doubt as to the advisability of immediate surgical interference. The operation was performed under ether on the afternoon of the same day. An incision was made through the upper lid, a little to the inner side of the centre, just below the orbital border and continued backwards into the orbit for about an inch and a half. Withdrawal of the knife was followed by considerable bleeding, but no escape of pus or decrease in the exophthalmus. The incision through the integument having been enlarged, the orbital cellular tissues were divided as freely as possible in the region of the suspected abscess; the method being to introduce a pair of small, straight forceps into the wound, draw forward the tissues presenting and cut into them with blunt-pointed scissors. A pus cavity was finally opened and upon making firm pressure over the eye-ball one or two drachms of thick, yellowish pus escaped. The cavity was then thoroughly syringed out with a $\frac{1}{5000}$ solution of corrosive sublimate, a drainage-tube inserted and a compress bandage applied. Directly after the escape of pus the exopthalmus decreased a little, but the reduction was only temporary, the globe being again forced forward, and at the end of two or three minutes was as prominent as before the operation. For ten days there was considerable edema of the lids and ocular conjunctiva, but there was very little pain, no headache and but slight elevation of temperature. The wound was syringed daily with a corrosive-sublimate solution and for the first few days there was considerable purulent discharge. The exophthalmus began to decrease at the end of the second week and at the time of discharge, August 27, was hardly noticeable. The vision began to improve somewhat earlier, it being seven-tenths of the normal seven days after the operation, and fully restored three weeks later. The boy was again seen October 13th, when, with the exception of an almost complete ptosis, the ocular condition was found to be normal. He was admitted to the house at this time, and Pagenstecher's operation for ptosis performed, which resulted very satisfactorily. There is nothing in the history of this case to indicate that any of the orbital nerves were primarily involved except the branch of the third supplying the levator. A paralysis of the superior rectus may have been an early symptom, however, there being pressure on both branches of the upper division of the third or on their common trunk. The defective motion of the other ocular muscles practically developed while the case was under observation and was undoubtedly secondary to the inflammatory condition and resulting pressure of the intra-orbital tissues. There was nothing that would suggest a fracture of the orbital bones, or an intra-orbital hemorrhage, and the ptosis following so quickly upon the injury would practically exclude the possibility of pus forming in one of the neighboring cavities and perforating into the orbit. The only reasonable conclusion to be drawn, therefore, is, that the counter-stroke was of sufficient severity to result in a breaking down of the orbital tissues and the formation of an abscess, and that in this case, as in the preceding one, the point of injury was in the posterior third of the orbit within the muscular cone above the optic nerve and nearer the inner than the outer orbital wall. Although the orbit is not a large cavity the localization of an abscess or other pathological change is often most unsatisfactory. To explore an orbit and find nothing to account for a high degree of exophthalmus has, I presume, been an experience of most ophthalmic surgeons. A small collection of pus far back and in a mesh-work of connective tissue may result in an exophthalmus out of all proportion to the degree of pressure that it could, of itself, induce, for the probable reason that it is accompanied by an extensive edema and vascular engorgement of the orbital contents. In a case like the one just cited, therefore, points in localization should be carefully considered and, if operation is decided upon, a free division of the connective tissue with blunt-pointed scissors offers the safest, as well as the surest, means of finding and evacuating a collection of pus.

A CASE OF INTERMITTENT HYDRONEPHROSIS CURED BY A URETEROPLASTIC OPERATION.[1]

BY JOHN W. ELLIOT, M.D., BOSTON.

The patient, an unmarried woman, twenty-three years old, a type-setter by occupation, entered the Massachusetts General Hospital on June 12, 1897.

Two years before entrance, while at work, she had been suddenly attacked with pain in the back and right lumbar region, accompanied by nausea and vomiting. After one day in bed she was well again. A few months later these attacks occurred every three or four weeks. They were in no way connected with menstruation, and she was never jaundiced.

During the following summer she was free from the attacks, but in the autumn they began again and have continued ever since, occurring at times as often as every fortnight. In January she first noticed a tumor in the right side which has gradually increased in size, although at times it has almost entirely disappeared. On May 20th the tumor appeared with an attack of pain; the next day the tumor disappeared with the pain. She did not notice that she passed a large amount of urine at this time. She had never passed gravel.

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 6, 1898.

She was in the midst of an attack when she entered the hospital. Temperature 100°, pulse 104. The urine was acid. Specific gravity 1,024. Slight trace of albumin present. Sediment considerable, very occasional hyaline casts with pus cell adherent. Occasional small, round cell, often fatty. In the right lumbar region, there was a tumor the size of two fists. It extended past the median line in front, and could be plainly felt in the back. It was slightly movable and indistinctly fluctuating, but not painful to touch.

On June 13th, the next day after entrance, the tumor had entirely disappeared with the pain, forty ounces of urine having been passed in the night.

The right kidney, however, could be felt much more distinctly than the left. It moved up and down with respiration, but on changing the position of the patient it did not move out of place.

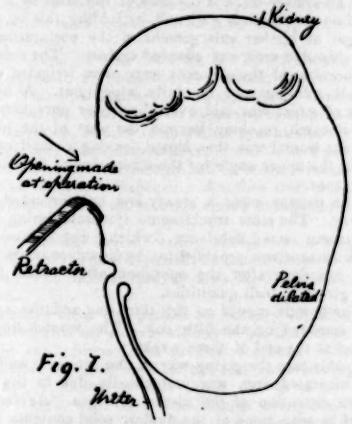


Fig. I.

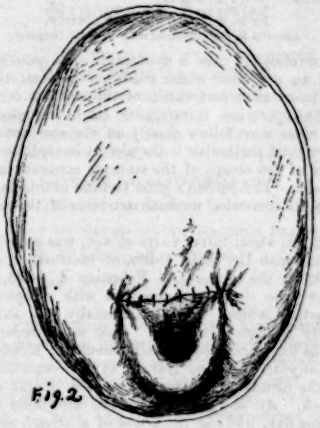
On June 21st I found on examination periuterine adhesions on the right side in such a position that there seemed a possibility that they might bind down and occlude the ureter.

July 2d. The patient began to have pain and fulness in the right side and the next morning the tumor appeared again. This time the tumor became smaller on the second day, and disappeared on the third day, after passing twenty-nine ounces of urine.

The patient was again allowed to go about the hospital grounds, and on July 23d the tumor began to appear again and, to my surprise, the quantity of urine was much increased at this very time.

July 25th. Outline of tumor visible. Patient suffering a great deal of pain.

July 28th. The operation was done with the patient on the left side, bent over a sand bag. The tumor could be felt, although considerably diminished in size. The kidney was exposed by a lumbar incision. It was found to be nearly twice its normal size. The dissection was carried along the under side of the kidney which finally was tipped over toward the median line. The pelvis was then seen lying in folds and somewhat adherent to the surrounding fat. It was many times its normal size, the distance from ureter to calices being about five inches. The ureter, of normal size, was found leading off from the side of the pelvis, a pouch of which extended below the level of the mouth of the ureter on the inner side. The pelvis was opened by a transverse incision one and a quarter inches long. The mouth of the ureter was found directly beneath this opening. About the ureteral opening was a raised ring one-eighth inch in diameter, consisting of fibrous tissue which acted apparently as a sort of dam. (See diagram No. 1.) To the inner side of this dam the pelvis was much dilated. The urethra was catheterized with an English bougie No. 5 (12 French) which met no obstruction. No. 6 English did not pass easily. Calices and pelvis of kidney examined but no stone or other disease was found. The obstruction to the urine


Fig. 2.

Looking into the pelvis of kidney showing result of plastic operation on the ureteral opening.

was therefore apparently due to a valve action of the pelvis. It appeared as if a certain amount of urine collected in the pelvis behind the raised end of the ureter. This caused the pelvis to sag and press on the ureter, closing it completely. The mouth of the ureter was laid open by an incision through the raised ring and extending one-half inch downward. The incision was made toward the dilated sac of the pelvis on the inner side of the ureter to form a channel for the flow of urine. The sides of this longitudinal incision were pulled apart until the ends could be united in the middle, thus changing the line into a horizontal one (like the pyloroplasty). In this position the cut edges were united by catgut sutures inside the pelvis of the kidney. (See Fig. 2.)

A bougie was left in the ureter and a drainage-tube and gauze packed into the pelvis, the outside wound being partially closed.

The patient made a good recovery. The bougie was removed in three days.

There followed a moderate pyelitis which was much benefited by washing out the pelvis. On August 17th the wound was allowed to close, but so much pus appeared in the urine that the wound was reopened in order to continue washing the pelvis. A few days

wound was again allowed to close and the pus ne gradually disappeared, and the patient left ital September 13th in good condition.
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April 6, 1898. The patient was shown to the Surgical Section. She stated that she was in good health and was working steadily. On examination the right kidney could be felt somewhat enlarged, but there was no sign of a recurrence of the hydronephrosis.

A CASE OF PERFORATING GASTRIC ULCER. OPERATION AT END OF TWENTY-FOUR HOURS. RECOVERY.[1]

BY A. T. CABOT, A.M., M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

THE following case is unusual, in that recovery followed an operation which was done at least twenty-three hours after perforation of the stomach occurred. Usually operative interference to be successful in these cases must follow closely on the accident; for a rapidly fatal peritonitis is the almost immediate consequence of the escape of the stomach contents into the abdomen. The patient's good fortune in this case was due to the somewhat unusual character of the perforation.

Mrs. G., about thirty years of age, was seen in consultation with Dr. C. C. Odlin, of Melrose, at eleven o'clock on the morning of February 4, 1898. She had for some time been troubled with symptoms of indigestion which were occasionally of sufficient severity to cause vomiting. One week before the vomitus had contained a small amount of blood. An especially troublesome feature of her condition had been the formation of large quantities of gas in the stomach. At one o'clock on the afternoon of the previous day, while at the house of a friend, she had been suddenly seized with violent abdominal pain. A swelling of the abdomen came on rapidly, so that when Dr. Odlin saw her a short time after the seizure it was already tensely distended. He found her in quite a profound condition of collapse. With the use of morphia and of hot fomentations the pain was somewhat controlled and her condition slowly improved.

Our examination showed the abdomen to be tensely distended, somewhat tender everywhere but especially so in the left iliac region and in the epigastrium. No resistance or mass could be felt anywhere. Percussion was tympanitic and especially high pitched in character. The liver dulness had entirely disappeared and a high tympanitic note was obtained over that organ.

A probable diagnosis of perforating gastric ulcer was made and an immediate operation was advised. This was agreed to and at once prepared for. The abdomen was opened just before twelve o'clock. On incising the peritoneum, large quantities of odorless gas escaped. The stomach and intestines were considerably distended and the peritoneal surfaces were moderately injected but no fluid or solid stomach contents were seen although there was a small amount of turbid serum in the dependent parts of the abdomen.

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The stomach presented a normal appearance except that just at the edge of the liver was a little fibrinous exudation. Separating the stomach from the liver, more of this exudation was found but not in any quantity. At one point on the lesser curvature of the stomach the fibrin was a little thicker than elsewhere and on wiping it off a yellow, sloughy area about one-quarter of an inch in diameter was brought to view. The centre of this was perforated by a minute opening through which a few bubbles of air escaped. Beneath this the stomach wall was slightly indurated over an area about one inch long by three-quarters of an inch broad.

The above-described opening was closed by folding the stomach wall together over it with Lembert stitches in two rows. These were so taken as to fold in the entire portion of the wall that was occupied by the induration. It was believed that the indurated area accurately marked the base of the ulcer as it existed on the stomach wall and by folding this in, any danger of further enlargement of the perforation in the ulcerated area was guarded against. The accessible portions of the abdomen were then irrigated with a salt solution and carefully wiped out. A small wick of gauze was laid over the lesser curvature of the stomach, reaching beyond the seat of the ulcer and the wound was then closed, leaving a small opening at the upper angle for the emergence of the end of the gauze.

The patient made a steady and uninterrupted recovery. The most troublesome symptom during convalescence was flatulency, which was excessive. Nourishment was provided for by liquid enemata the first few days after the operation, after which food was given in small quantities.

The bowels moved on the third day and the gauze was removed on the fifth day. The wound finally closed at the end of three weeks.

In this case the giving way of the stomach wall in the ulcerated area was undoubtedly due to the extreme distention of the viscus with gas. As far as could be seen, none of the fluid or solid contents had entered the peritoneal cavity. The sloughing condition of the stomach wall just about the point of perforation makes it probable that a much larger opening would presently have been made by the action of the gastric juice on this dead tissue.

The point of greatest diagnostic value in this case was the absolute disappearance of the liver dulness in consequence of the great amount of gas in the peritoneal cavity.

A CASE OF ACTINOMYCOSIS.[1]

BY E. A. CODMAN, M.D., BOSTON.

THE patient entered the Massachusetts General Hospital July 18, 1895, in the service of Dr. F. B. Harrington, by whose kindness I am able to report the case.

He was forty-eight years old and married. The family history was negative, except that his mother and an uncle died of phthisis.

Previous history good until three years before, that is, 1892, when he had a severe attack of the grippe with a very bad cough. His attacks of coughing were so violent that they attracted a great deal of attention

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The cause was supposed to be tubercular necrosis of one of the ribs, and he was recommended to the hospital to have the sinuses cleaned up.

The chest was negative except for cardio-respiratory murmur in region of apex, and harsh breathing with a few râles in left front, in region of sinuses. There were two sinuses and one old scar in cardiac region, low down.

Before entering the hospital the patient had been working for twenty-five years in a straw-hat factory. The straw used was imported from Italy, China and other places.

An operation was done by Dr. F. B. Harrington, and the tract between the two sinuses was dissected out. This tract appeared to be an ordinary tubercular sinus, but Dr. Mallory, who happened to be present at the operation, noticed some yellow granules in the discharge and suspected actinomycosis. He examined these under the microscope and in a few minutes was able to verify this diagnosis. Another tract was then dissected out and the wounds closed except for small drains.

The wounds healed readily except where drained, and on the 25th the patient returned home to West Upton with instructions to take K. I. in increasing doses.

A letter from the patient on January 12, 1896: — "As regards my side, I will say it has healed, as you might say. Since I was in Boston I have taken the medicine you prescribed for me, and shall continue to do so. I expect it will break out in a week or so. There will be a little bunch come about the size of a pea and quite sore. In course of two or three days I tap it with a gold pin, and in two or three days it is healed. A very little matter comes out and then clear blood. These bunches come in the wound. They do not come as often as they did but seem to grow less. As to my health, I have not been so well for five years as I am now."

I saw the patient again in February, 1896. His general health was better than for years. He weighed 144 pounds against 132 for the last fifteen years. He had been taking the iodide up to 110 grains daily.

A fresh abscess which had appeared above median scar, I opened and curetted as far as possible. A week later I endeavored to excise the sinus, but found that it extended over two inches under the sternum. Dr. Mallory was kind enough to examine the specimen again and found the fungus still present.

This wound healed in about six weeks. Since then the K. I. has been continued, and on November 23, 1897, he writes as follows: — "It remained about the same for eight or ten months, and for the last four months it has not troubled me much. It will gather in the same place that you opened when I last saw you. It has been two weeks since I have opened it. Then I got two drops of blood, no matter; it seems to grow less. I think by the feeling it will have to be opened in a week or so. It forms a blood-blister and no larger than a quarter of a small cranberry. There is no pain any more than a sliver under the skin large enough to fester. I call myself better than for years. I have taken the medicine most of the time. I don't think there has been over four weeks in the time I have been without taking it. I skip a day and sometimes a meal or two, that is all. I am working ten hours and feel fine."

The patient has been kind enough to allow me to show him to-night. The sinus has not broken out since six weeks ago. Unfortunately, for the last week he has had a bad cold so that he appears in perhaps worse condition than he really is.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

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DR. CODMAN reported

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A CASE OF PERFORATING GASTRIC ULCER.[2]

DR. J. W. ELLIOT read a paper on

INTERMITTENT HYDRONEPHROSIS WITH CURE BY OPERATION.[3]

DR. RICHARDSON: Cases of this kind comprise a field in which the prospect seems to be alluring and brilliant. I was so much impressed by Fenger's paper that I performed the operation on the first case of intermittent hydronephrosis that I saw. This case I reported a year ago, in the *Transactions* of the American Surgical Association. The principle employed by Fenger which Dr. Elliot followed is, I think, the same principle which I used, but I was able to use it, I think, in a more satisfactory way in my case than in those in which it is necessary to open the pelvis of the kidney. I showed my patient at the clinical society of the hospital about a year after the operation and found a perfect cure. The patient was a nurse and had a recurring tumor in the region of the gall-bladder. In fact, I thought the trouble was in the gall-bladder and operated for that. I found that the gall-bladder was normal, but that there was a retro-peritoneal tumor in the region of the kidney which I recognized as hydronephrosis, so that afterwards in my second operation I was guided by the knowledge of the anatomical relations better than if I had not performed the original and more or less unnecessary exploration. In this case the Miculicz operation of pyloroplasty was employed. In Fenger's the valve was removed by an intrapelvic longitudinal incision converted into a transverse one. I used very fine silk and the joint came out very nicely just as pyloroplasties do for strictures of the pylorus. The woman made a good recovery and has been well ever since. It was not a movable kidney. There was no preliminary history in my case, nothing pointing to

[1] See page 134 of the Journal.
[2] Loc. cit.
[3] See page 122 of the Journal.

later the wound was again allowed to close and the pus in the urine gradually disappeared, and the patient left the hospital September 13th in good condition.

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Dr. J. W. Elliot read a paper on

INTERMITTENT HYDRONEPHROSIS WITH CURE BY OPERATION.[3]

Dr. Richardson: Cases of this kind comprise a field in which the prospect seems to be alluring and brilliant. I was so much impressed by Fenger's paper that I performed the operation on the first case of intermittent hydronephrosis that I saw. This case I reported a year ago, in the *Transactions* of the American Surgical Association. The principle employed by Fenger which Dr. Elliot followed is, I think, the same principle which I used, but I was able to use it, I think, in a more satisfactory way in my case than in those in which it is necessary to open the pelvis of the kidney. I showed my patient at the clinical society of the hospital about a year after the operation and found a perfect cure. The patient was a nurse and had a recurring tumor in the region of the gall-bladder. In fact, I thought the trouble was in the gall-bladder and operated for that. I found that the gall-bladder was normal, but that there was a retro-peritoneal tumor in the region of the kidney which I recognized as hydronephrosis, so that afterwards in my second operation I was guided by the knowledge of the anatomical relations better than if I had not performed the original and more or less unnecessary exploration. In this case the Miculicz operation of pyloroplasty was employed. In Fenger's the valve was removed by an intrapelvic longitudinal incision converted into a transverse one. I used very fine silk and the joint came out very nicely just as pyloroplasties do for strictures of the pylorus. The woman made a good recovery and has been well ever since. It was not a movable kidney. There was no preliminary history in my case, nothing pointing to

[1] See page 134 of the Journal.
[2] Loc. cit.
[3] See page 122 of the Journal.

the cause. I think these cases are very interesting and they open up a field which I think will be a brilliant one when we get the technique of the operation so well understood that we avoid the dangers of extravasation and septicemia. In my case the urine was perfectly aseptic, no evidence of pyelitis, in fact, everything went on just like any other aseptic operation. Half the incision was in the pelvis and half in the ureter.

Dr. Arthur T. Cabot reported a case of very large hydronephrosis. The sac was as large as an adult head and the ureter in entering it did not seem to make a valve. A bougie was introduced into the ureter well down towards the bladder and then the edges of the incision into the pelvis of the kidney were fixed to the sides of the wound. In this case the condition seemed more favorable for cure than an intermittent hydronephrosis. The sac was very much larger, and the distention was of long standing. The urine obtained from this kidney by drainage was of good character and fair amount. The bougie was taken out of the ureter at the end of three days and the kidney soon shrank to normal size and the sinus in the side closed quickly.

The patient was seen six or eight months afterwards and absolutely nothing in the way of any distention of the kidney could be made out. In this case, then, no plastic operation was done on the ureter. The ureter was straightened on a bougie and kept straight three days, in which time the walls of the ureter probably became slightly stiffened by the irritation of the bougie, and the kidney also was drawn up and fixed in a better position than it formerly occupied and these two forces operating together obviated the valvular condition that led to the hydronephrosis.

He said that Dr. Richardson's case was the only one he knew that absolutely demonstrated the value of the plastic operation upon the valve. In every other reported operation that he knew a bougie had been introduced into the upper part of the ureter and left there for from three to five or six days and the kidney also in these cases has been fixed whether it is sewed or not. For at the opening made for drainage, an adhesion certainly takes place which fixes the kidney, prevents its going up and down and so removes that cause for hydronephrosis. Dr. Richardson operated without introducing a bougie and without emptying the pelvis and keeping it empty. Cases have been reported in which the simple emptying of the pelvis has been enough to draw the parts into better condition and remove the kink that has caused the obstruction, while the fixation following the operation has confirmed the cure.

As suggesting some points for discussion I will simply say that Cohnheim some years ago showed that ligature of the ureter was not followed by hydronephrosis, but by gradual disappearance of the kidney. The causes of hydronephrosis are a partial or an intermittent obstruction of the ureters, or the gradual closing of them. When hydronephrosis is caused by an intermittent or by a gradual obstruction it may finally become permanent and destroy the kidney; therefore this operation which has been revived by Fenger is of the greatest value if it can be successfully practised, because it saves the very valuable kidney substance from destruction by taking away the cause. The causes of valvular hydronephrosis are very important and suggestive as to treatment. Cohnheim thinks that it is a congenital bending or congenital valve that usually causes intermittent hydronephrosis. Landau and Terrier believe that movable kidney is the usual cause, and Landau has made elaborate experiments on the cadaver to show that pulling down the kidney bends the ureter in such a way as to cause obstruction. Tuffier also takes the same view, and consequently he believes the proper treatment of the intermittent hydronephrosis is nephrorrhaphy. Küster, on the other hand, believes that this condition is brought about usually by pyelitis, the inflammation of the lining membrane swelling the mouth of the ureter and causing moderate obstruction — intermittent obstruction. Simon thinks an accidental asymmetrical dilatation twists the kidney part way round and in that way makes a valve of the ureter which closes and uncloses. Fenger is inclined to believe that all these causes play their parts at different times, and probably at times two of them act together. I think it is important in reporting cases to state what condition was found. In my case the kidney certainly was not a typical movable kidney. It moved up and down but did not move sideways. All kidneys, I suppose, move up and down more or less in respiration. In regard to the operation, Simon wrote the first paper on the subject in 1876, I think. His case died. Trendelenburg opened the abdomen by a lateral laparotomy and split the mouth of the ureter and turned out the mucous membrane, sewed it out to make the opening larger. His patient unfortunately died. Küster intended to do the same operation, but found stricture of the ureter, so he resected the ureter. Fenger (1892) was the first to do a successful operation for intermittent hydronephrosis due to obstruction by valve formation. In his case the kidney was a movable kidney, and he not only cut away the valve but fixed the floating kidney itself. Mynter, of Buffalo, in 1893, did the second successful operation. Since then there have been several in Boston, and I dare say others.

Dr. Watson: I have had no operative experience in this matter, so I will not speak on that aspect of the subject.

Dr. Elliot has referred to Cohnheim's early experiments with reference to renal retention. Albarran has recently made an interesting series of similar observations; among them the following things were noted: The immediate effect of the ligature of the ureter is to produce an enlargement of the kidney, due not to the distention of the pelvis by the collection of urine in it but to congestion of the organ itself. The secreting function of the kidney is suspended and but a few drops of urine collect.

A rapid destruction of the renal tissue takes place if the total obstruction of the ureter continues. In partial retentions the condition of enlargement due to congestion of the kidney and the temporary suspension of the renal function are also observed, but if partial obstruction is continued or often repeated hydronephrosis is ultimately produced. The congestive enlargement of the kidney has usually been assumed to be due to hydronephrosis by clinicians.

I have recently had the opportunity to note, for a short time, the phenomena produced by complete ligation of the ureter in the living subject; this occurred during a nephrectomy. The kidney was bound down in an abnormal position by extensive adhesions. I ligated the ureter low down as the first step in the op-

eration; the time occupied after this in freeing the kidney prior to its removal was about twenty-five minutes. In the first place, previous to the ligature of the ureter I had the opportunity to observe the rhythmic peristaltic-like contractions of the renal pelvis and upper end of the ureter in the propulsion of the urine toward the bladder. As soon as the ligature was applied these contractions ceased, but for a time could be reproduced by sharply tapping upon the pelvis with the handle of a knife.

But a few drops of urine collected in the pelvis and after a few minutes the kidney began to enlarge through disturbances in its blood circulation; this enlargement was not great during the time that it could be noted. This observation corresponds with those of Albarran's referred to above, so far as it went.

A further series of Albarran's has special interest from the point of view of the surgeon. In it he showed how much greater the possibilities of restoration of the renal function were after what seemed at the time of operation very extensive destruction of the kidney tissue by hydro- or pyo-nephrosis than we have thought heretofore. Many of us have had opportunities for verifying this fact clinically in cases of the above-named conditions after a nephrotomy has been done. In the case of one patient for whom I did a nephrotomy three years ago and showed to this Society a year later, I have made frequent quantitative examinations of the urinary solids and have their gradual increase and a degree of return toward the normal that seemed impossible at the time of operation because of the amount of destruction that had already taken place. These things, together with the increasing number of successful results of the conservative plastic operations upon the renal pelvis and ureter such as this one that Dr. Elliot has reported here to-night, give promise of our being able to avoid the far more dangerous operation of nephrectomy in a certain number of cases by substituting these for it, and they should certainly be given a wider trial.

Dr. Elliot: I was leaving the loin open, so it was more convenient in this case. My bougie was a closed one, and did not carry any urine at all. I followed Fenger. I thought afterwards that a bougie would not prevent a stricture forming because it is too early in the first three or four days. Fenger had succeeded with the bougie and I knew Dr. Cabot had, so I thought I would do it in that way. The bougie does not particularly appeal to me, but it seems to work well.

Dr. Porter: This subject appeals to me more because it is a distinct advance in the conservative surgery of the kidney than from any other standpoint. Up to some few years ago a hydronephrosis of the kidney was a condition which led to destruction of the kidney and to final extirpation. It seems to me this is a very great advance in that line and it appeals to me somewhat more than ordinarily because just prior to the advent of this operation from the hands of Fenger I had a similar case to those that have been reported to-night, in a movable kidney with hydronephrosis. I did nephrorrhaphy and the case was relieved for some time, but the condition returned and the patient finally submitted to nephrectomy for the purpose of being relieved from the constantly recurring attacks of pain which laid her up from her duties a number of days and even at times extending into weeks. As soon as I heard Fenger read his paper I recognized this as a case that could have been relieved by such an operation as described to-night. Since that time I have not had a case which seemed to demand the operation. It is one of those cases the surgeon is looking for, and I hope the time will not be long when we shall have reports of more of them.

In answer to questions Dr. Porter stated that when he did the nephrectomy the pelvis was still dilated. The patient was aspirated before the nephrorrhaphy was done and went home, and was relieved quite a while. He was summoned by her doctor for this recurrence and advised nephrectomy. A year afterwards she wrote that she was in perfect health.

Dr. Elliot: I think the cases brought up this evening are very interesting in connection with the theory of cause and cure. Dr. Porter's case more or less disposes of the probability of curing these by simply fixing the kidney. Before Fenger's time it was the opinion of Touffier, Landau and such men that fixing these kidneys would cure them. Dr. Richardson's case shows that it is not the bougie that does it, and Dr. Cabot's case shows that certain ones of these cases can be cured without a plastic operation. I was interested in what Dr. Cabot said about cure by aspiration. It occurred to me some time ago that curing by aspiration was probably by a final atrophy of the kidney after the urine had been drained away, and two years ago I happened to have a case of pelvic inflammation, and in the course of that case there was a hydronephrosis, which was aspirated by my colleague who had charge of the case with me, and that was a perfect cure so far as the hydronephrosis went. The case went on from bad to worse and finally the patient died. At the autopsy this cured hydronephrosis was found to be a totally destroyed kidney, so that confirmed the idea which I had had in my mind. It certainly shows that sometimes the cases of hydronephrosis apparently cured by aspiration are probably the ultimate atrophy of all kidney substance. The encouraging thing about this new operation is that here in Boston there have been three cases done following Fenger and all have recovered, which shows that probably the mortality will not be very high.

Dr. F. E. Cheney read a paper on

Orbital Injury by Contre-coup.[1]

Dr. Standish: I have been much interested in Dr. Cheney's paper, although I do not know that I have ever seen a case exactly like the one reported. Of course what he says in regard to abscess in the orbit has been the experience of every one. An effort to find a small abscess in the back of the orbit is rarely successful. Fractures into the orbit of course are fairly frequent, and often result in injury to the vessels or to the nerve. Most cases of fracture through the orbit that I have seen have been associated fractures of the base of the skull and have arisen from blows on the back of the head. I remember very well a case I saw when at the Massachusetts Hospital. A sea-captain fell backwards over the hatch, and struck on the back of the head. There was immediate loss of vision, and subconjunctival hemorrhage extending down on the cheek. In that case the ophthalmoscopic examination showed no blood in the vessels of the retina; undoubtedly the ophthalmic artery had been ruptured by a sharp edge of the bone at the back of the orbit, at the time of the fracture. Of course in such a case there is no dispute as to what

[1] See page 120 of the Journal.

has happened; but there are other cases, of which I have seen two, which I wish to speak of on account of their medico-legal importance. I saw a girl fifteen or sixteen years of age who had been pushed off a wagon by the driver, while trying to steal a ride, and fell into the street striking on the back of the head. There was no illness, no hemorrhage into the orbit, no result whatever, except the fact that the child said she could not see out of one eye. The ophthalmoscopic examination showed a perfectly normal fundus; the vessels were properly filled, the nerve looked well and everything seemed to be in good shape. The case was a medico-legal one and I was inclined to think it was probably a case of pure fraud. The interesting point came three months afterwards, when there was undoubted atrophy of the nerve in that eye and it became evident that there had been a fracture through the orbit and the nerve injured, and that the child had been correct in saying she saw nothing. The second case was similar to the first: an injury to the back of the head, nothing to be seen in the eye, but after a period of three or four months, atrophy supervened. In that case also, there had been a fracture sufficient to do this damage without there being any other sign of fracture. I am very glad to hear these cases Dr. Cheney has reported. They are not common.

Dr. Walton: These cases are certainly very rare, as Dr. Standish has said, and this makes it all the more important for us to be able to recognize them. I will pass around, in the first place, this photograph of the case to which Dr. Cheney has alluded, in which almost immediate painless paralysis or partial paralysis of the lid followed a blow on the forehead with a base-ball. This was the first case I had seen, in fact, the only case I have ever seen, and it puzzled me. At first I thought the ptosis might have antedated the injury, but photographs previously taken precluded this supposition. On looking up the literature I found there were a few such cases reported and I am glad Dr. Cheney has tabulated his experiences to aid in drawing general conclusions in a class of cases which isolated would be baffling. It certainly looks as if it must be hemorrhage that takes place in these cases. Rapid onset without pain could only mean one of two things, — either serous exudation or hemorrhage. It seems very improbable that serous exudation of the sheath should produce lasting paralysis, and it also seems improbable, it is true, that hemorrhage in the sheath of the nerve should cause permanent paralysis, judging by our knowledge of other nerves. Gowers has, therefore, suggested that the circulation of these nerves may differ in some way from that of others. Whether this is true I do not know. Such a case as the one to which I have alluded is certainly very hard to explain. It is very difficult to imagine this nerve, however delicate it may be, so ruptured by a blow of a base-ball, as to cause permanent loss of function, and no other symptoms. It is also improbable that there was any fracture. Goldscheider found in one case a hemorrhage in the sheath of one of the branches of the third nerve; the symptoms from which lesion had preceded by several days a meningeal hemorrhage.

PATHOLOGICAL SPECIMENS.

Dr. E. W. Cushing: I. I have, in the first place, a specimen of what was supposed to be a fibroid tumor. A young woman thirty-two years old was perfectly blanched by hemorrhage, and in such shape I did not dare operate. I curetted the uterus and sent her home for two or three weeks and then removed the uterus which was five inches long and three inches broad. Instead of being a simple fibroid, it contains an adenoma forming a mass as large as a goose egg. This disease is quite rare in young women of that age, for it usually comes in those who have passed the menopause. She recovered.

II. I have here another specimen which is very interesting from the age of the woman. A young woman of twenty-six, a few months after the birth of her first child, began to have hemorrhages and on examination it was found that there was a deep ragged ulcer on the posterior lip of the cervix uteri. It was evidently nothing but malignant. I removed it by vaginal hysterectomy. As is my custom in those cases where everything is clean, I united the opening of the floor of the pelvis, matching the peritoneum together and burying the stumps of the broad ligaments, closing the incision in the vagina entirely with catgut; some days after, without much fever, there was a collection in the pelvis, which was opened through the original incision, and a thick pus was discharged, which on examination was tubercular and composed of very little else except tubercle bacilli and detritus. Dr. Leary thinks there must be some tubercular peritonitis or tuberculosis of the large intestine, but there are no symptoms of it. It was an odd thing to have a combination of cancer and tubercle in so young a woman. The patient went home in good condition.

III. This specimen is from a woman who was operated on a year ago at the Massachusetts General Hospital, and she said the operation was for appendicitis. I know nothing about the case at that time. She was there three months and went away with a fistula. That lasted a year, during which time she has not menstruated. She came with fecal fistula, and the oval part of the specimen represents the skin, and the tube of the length and size of the little finger is the fistula leading to the bowel and leading also to abscess of the right tube. I dissected it all out, separated the bowel off, and sewed up the opening in it, removed the right tube and the other tube. The ovaries were missing, but both tubes contained pus. To make everything sure I also removed the appendix which was adherent and she is doing very well; has since gone home well. The interesting thing is that in these cases by cutting around the fecal fistulous opening in the skin the fistula can be dissected out as a thick tube about the size of the finger down to the place where it opens into the bowel, and this gives a chance to sew the bowel up.

IV. At first sight it does not seem plain what the next specimen is, but it is from a case of very large prolapse in a woman seventy-nine years old, who had had it eighteen years and refused all help until she began to have this ulcer form, which at first sight appeared to be epitheliomatous. I therefore dissected out the ulcer from above, and then formed a flap from over the bladder and removing the neck of the womb, which is about one and one-half inches long. A posterior flap was formed and all the redundant tissue dissected away. Joining the anterior and posterior flaps together and uniting the openings running far up on the sides, I was able to push the stump back and build up a perineum. That is the oldest woman I ever

operated on. The disease is not an epithelioma, there is a sort of papillomatous condition of the great ulcer which might eventually become epitheliomatous.

AMERICAN MEDICAL ASSOCIATION.

MEETING OF THE SECTION ON THE PRACTICE OF MEDICINE, DENVER, JUNE 7–10, 1898.

(Concluded from No. 5, p. 116.)

There is universal testimony that altitude cures phthisis. Altitude acts in various ways: (1) By dryness, which is inimical to the growth of the tubercle bacillus. (2) By cold, which favors dryness and is a stimulus. It also increases the tendency to sleep. (3) By sunshine, under which the tubercle bacillus can be killed if directly exposed, in a period varying from a few minutes to a few hours. (4) By an increase in the quantity of ozone, the natural purifier. (5) By purity, as the air becomes more and more pure as we ascend. Miquel found the air of Paris to contain 55,000 bacteria to every 10 cubic metres. (6) By rarefaction, the most important factor of all. At an elevation of 13,300 feet, it is one-sixth as dense as at the sea. This rarefaction leads to increased exercise of the heart and the lungs, and so, unconsciously, to gymnastics. The dyspnea, palpitation, vertigo, etc., which attend mountain climbing depend upon insufficient oxygenation of the blood. No elevation has ever been attained in which the quantity of oxygen was not more than sufficient for the wants of the body, and it was for a long time difficult to account for those symptoms which are sometimes embraced under the term "mountain sickness." The explanation was found to be in the phenomena of pressure. The blood-vessels will only take up a certain amount of oxygen at a certain degree of pressure. Bert found that a pressure of fifteen atmospheres is fatal. On the other hand, the blood-corpuscles will not take up enough oxygen under a greatly diminished pressure, and nature adjusts herself to this difficulty by increasing the number of blood-corpuscles but diminishing their size.

The polycythemia is an accommodation to a lessened pressure, for the same increase in the number of blood-corpuscles in animals may be artificially produced by confinement in a rarefied atmosphere. Can we imitate this process in the pneumatic cabinet? The experiments made hitherto have shown no increase in the blood-corpuscles or in the hemoglobin, and still less that increase in strength which develops so rapidly in the mountain climate.

As the virtues of the mountain climate seemed to depend chiefly upon the increase in the number of blood-corpuscles, it occurred to the speaker to try to secure this increase in a more direct way. Transfusion of blood has become practically limited to the treatment of hemorrhage and the poisoning by certain gases. The speaker then dwelt upon the difficulty of getting blood at the time when needed, of the dangers of transfusion, of the bad symptoms following its use, of the different methods in use, etc. The great desideratum was to get a heterogeneous blood which could be introduced into the body with all its ingredients quickly, safely and pleasantly.

He wished to get a blood that contained all the bactericidal properties; blood from a younger animal was therefore to be desired, as older blood loses its power to destroy bacteria. It was also desirable to increase the number of the leucocytes, because the bactericidal properties of the blood rest largely in these cells. The dissolution of the white blood-corpuscles under the action of bacteria liberates the antitoxin which destroys the bacteria.

As the coagulum entangles most of the white blood-cells, it is necessary to prevent coagulation to secure their presence. The process of coagulation is closely connected with the life of the blood, and it may be said in a general way that the process of coagulation represents a beginning dissolution of blood and the prevention of it with simple means may be regarded as the preservation of the life of the blood. The speaker then referred to the many ways of preventing the coagulation of blood; among others being the addition of water, egg albumin, sugar, glycerin, cooling addition of tripsin of peptone, leech bites, bites of poisonous snakes, various drugs, etc. Blood can be kept fluid by a number of agents, each of which being a constituent of the blood and therefore an article of nutrition. These are common salts, bicarbonate of soda and the sugar of milk. The addition to fresh blood of salt, soda and sugar of milk adds nutritive principles, preserves the corpuscles, red and white, intensifies the alkalescence, prevents coagulation and prolongs the life of the blood. Thus the first part of the question was solved.

The next problem, the method of introduction, which seemed to be the most difficult, turned out the most easy. The drinking of blood having certain objections, it occurred to the speaker to introduce the blood directly into the intestines; this was done by means of a fountain syringe, or better yet by using the funnel and tube of a common stomach-tube, which can be easily pushed into and beyond the sigmoid flexure. The injection is taken at night, with the patient lying upon the left side; after the injection the patient should lie fifteen minutes upon the back, then fifteen minutes upon the right side, so that the fluid may find its way through the colon. In no case should the fluid be heated, as it favors coagulation. Introduce the quantity every night, and in bad cases twice a day, previously washing out the bowels with warm water. The patient is directed to add a teaspoonful of salt, two tablespoonfuls of soda and a tablespoonful of sugar of milk to a pint of boiled water and to pour one-half of the quantity into a clean glass jar, requesting the butcher to add to it one pint of fresh calf's blood.

The speaker had lost a great deal of time in determining the best agents for preventing coagulation, so he was able to report upon but twelve cases of phthisis and one of apparently pernicious anemia. The patients without fever showed a continuous gain in weight, but patients with high fever showed no improvement. The cases marked by anemia were the most benefited and showed the most rapid gains — from two to three pounds a week. The most decided change was seen in a case of anemia apparently of a fatal form; twenty pounds' gain in three weeks was reported.

REST: A NEGLECTED FACTOR IN THE TREATMENT OF GASTRO-INTESTINAL DISORDER.

DR. C. D. SPIVAK, of Denver, Col., read a paper with this title.

He did not enter into the discussion of the subject from a physiological standpoint, as we had not sufficient data to form a rational physiological theory of rest. He used the word "rest" as the antithesis of action. All of our organs manifest periods of action and repose, some absolutely rhythmical and others intermittent. Rest can be defined as nature's prophylactic. It not only prevents the further breaking down of tissues, but it affords chances for the tissues to store up new energy. The two periods of rest and activity must remain in a direct ratio in order to maintain an equilibrium. Nature insists upon rest "even to the extent of inflicting a twinge of pain on such as disobey her precepts." The surgeon and the neurologist have monopolized rest, the physician uses the whole pharmacopeia first, last and all the time.

The speaker wished to emphasize the importance of this much-neglected therapeutical agent in the treatment of gastro-intestinal affections. The physician has washed, scoured, scratched, punched and electrified the stomach, and is looking forward to the time when he can do the same for the duodenum. These things are all well enough, but the stomach and intestine are in no way different from any other organ in our body. There seems no reason why a bruised limb should be kept at rest, and not a stomach when it is in the same condition. There seems no reason why we should apply the Wier-Mitchell rest-cure to neurasthenia, and not to nervous dyspepsia. The only redeeming instance where the rest-cure is applied to the stomach is in cases of ulcer of that organ. A surgeon does not draw a line of demarcation between an ulcerated, broken, bruised, or simply inflamed limb. Rest is the *sine qua non* treatment. In the stomach, from a simple inflammation to a solution of continuity, the process, both pathological and reparative, is the same. Then why not apply, among other things, the same remedy?

Rest may be applied to the stomach in the following way:

(1) Rest in bed—absolute rest in bed. Sitting is not allowed under any circumstances. The bowels are regulated; the bedpan used. The whole body is sponged every morning. Isolation and massage are also employed if the judgment indicates such measures.

(2) Diet. Abstinence is the best bill-of-fare in many severe cases of gastro-intestinal disorder. Two, or even three, days' fasting will do no harm in cases of ulcer, dyspepsias and diarrheas of all kinds. Nutritive enemata can be employed where longer fasting is indicated. If food is given by the mouth, it should be given in small quantities, no matter whether liquid or solid, and at regular intervals. The quality and quantity of the food must be suited to the individual.

(3) Poultices. It is difficult to formulate a theory as to the action of poultices, but it is certain that they allay the peristaltic movements of the stomach, and make the patient feel comfortable and at rest. In severe cases the poultices are applied constantly day and night for one or two weeks; in milder cases from six to eight hours daily.

Nine cases were reported out of over one hundred treated, with a view of illustrating the groups of diseases wherein the author's method had given satisfaction.

CONCLUSIONS.

(1) Rest is indicated in all dyspepsias the underlying cause of which is a deranged nervous system.

(2) It is indicated in all cases where abdominal pain is present.

(3) In all cases of acute and chronic diarrhea.

(4) In hemorrhage of the stomach or intestines.

(5) In all tubercular cases suffering from disturbed digestion, be it stomach or intestines, and especially those having a vacillating temperature record. The rest-cure is indicated in 90 per cent. of all tubercular cases.

(6) So far as I know there is no disease of the gastro-intestinal tract where rest is not indicated.

Dr. Connell, of Pennsylvania, did not think there was any class of cases that required rest so much as diseases of the stomach. By rest he meant physiological rest; abstain from food entirely.

Dr. Tyson, of Philadelphia, said that the rest treatment of gastro-intestinal troubles would do more or less good in every case; that the application of therapeutic measures in these gastro-intestinal diseases was more or less haphazard. He hoped the time would come when accurate methods of treatment would bring more satisfactory results. A patient could go two or three days without any food, if he is in a position not to demand any force; food is a force-producing agent.

Dr. Spivac closed. He said he had tried to arouse the interest in the profession to one of the best methods that can be used and one which nature tries to use in the cure of disease.

In regard to tuberculosis those cases that were suffering from fever should take rest in bed. I limit these cases where rest is indicated in tuberculosis where there is temperature, diarrhea and vomiting.

REPORT OF CASE OF ANEURISM OF THE CONCAVITY OF THE TRANSVERSE ARCH, APPEARING EXTERNALLY AS A LARGE TUMOR IN THE REGION OF THE HEART,

by Drs. H. W. McLauthlin and William N. Beggs, of Denver, Col.

Dr. McLauthlin read the report of this case.

History: Charles M., age fifty-two, musician, mother died of cancer at the age of seventy and a sister of phthisis. He was dissipated and had contracted syphilis at the age of twenty. Had had rheumatism for fifteen years. Four months before coming for treatment he had bad cold, severe cough and a swelling in the left chest which had persisted, was tender and attended by shooting pains. He had become short of breath and this symptom had increased until he could breathe only with difficulty. He coughed considerably and expectorated. His appetite was good, but he was inclined to diarrhea and had lost about twenty pounds in four months.

Physical examination showed a large tumor the size of two fists, on the left side of the sternum, extending from the lower border of the second rib to the upper border of the seventh rib, and laterally from the centre of the sternum to the middle of the axillary region. This tumor was firm, pulsating distinctly, with no audible bruit. The heart sounds distinct, though the position of that organ could not be determined. Flatness exists over the whole left chest. Respiratory sounds were feeble, and fremitus absent, except in upper part near spine, where there was bronchial breathing with coarse râles. The right side shows exaggerated respiration in spots, with moist râles. There was edema of the ankles and puffiness

of the eyelids. Pulse about 90; respiration, 39. Patient weak and apathetic, memory poor, abundant syphilitic marks. Pulsation scarcely perceptible in the right radial artery, extremely weak in the left. There is no tracheal tugging. The right pupil larger than the left. Urinary analysis was negative.

The patient became progressively weaker and the tumor enlarged in every direction; its vertical measurement was ten inches and its transverse thirteen inches. A small amount of straw-colored fluid was drawn from the pleural cavity, and it was evident that there was a considerable amount present. Later, the skin over the tumor became red and blood began to appear. He died within a month from the time he was first seen.

The post-mortem made by Dr. Beggs showed large hemispherical tumor extending from the left anterior axillary line to one inch to the right of the sternum and from the clavicle to the seventh rib. The skin was eroded and dissection showed the cutis vera so thin that it could not be removed without invading the tumor. A considerable amount of cruor was expelled, the tumor was saccular, communicating with the aorta. The eroded distal ends of the second and third ribs extended into the cavity. The left edge of the sternum was eroded to a depth of about one-half inch. The pericardial cavity was entirely obliterated by adhesions. The heart was small, pale, flabby, friable and turned to the right on its axis. The valves were normal. The ascending and transverse portions of the arch were dilated and the inner surface wrinkled and atheromatous. The opening of the aneurismal sac began one and one-eighth inches above the upper margin of the semilunar valves, and was eight and one-half inches in circumference. The sac was directed first downward and forward, then forward and upward. In the right pleural cavity there were numerous old adhesions, in the left one and one-half quarts of amber-colored fluid. The left lung was much compressed and consolidated. The upper surface of the liver was covered with numerous shallow, richly stellate scars, and was slightly granular. The splenic capsule was much thickened and opaque, white in color, and there were a few shallow stellate scars on the surface.

A peculiarity of this tumor was its location, the usual place being beneath the sternum, below the right or left clavicle or in the back.

DIFFERENTIAL DIAGNOSIS.

The signs and symptoms during life strongly suggested aneurism, but the pulsation was nowhere strong, and Da Costa's most emphatic sign, the presence of two points of pulsation in the chest, two hearts apparently, was not ascertainable. There was absence of thrill and murmur from the tumor.

A pulsating empyema sometimes simulates aneurism. In this case the physical signs of fluid in the chest were present, but the tumor was enormously large for an empyema pointing externally. The tumor was firmer and the pulsation more expansile than in empyema; pressure signs were also present. The fluid in the chest was non-purulent.

Solid tumors of the chest, sarcoma, lymphomata and lymphadenomata are infrequent and tend to grow inward rather than outward. If such growths project externally and pulsate they may simulate an aneurism with rather firm clots. The expansile force is usually much less distinct. The adjacent glands of the axilla and neck are often enlarged, and the veins on the side of the thorax affected are liable to be varicosed. In cancer, the general health is usually poor.

Mediastinal abscess was not considered because of the size and location of the tumor, the character of the pulsation, the degree of the pressure symptoms and the character of the temperature.

The average duration of life after the first distinct symptoms of aneurism is given from fifteen to eighteen months. In 26 instances out of 68 death occurred from rupture of the aneurism, but in only one of these was the rupture external. In the case reported, death would probably have occurred from external rupture. Hemorrhage from aortic aneurism is far from being always fatal. Slow oozing and even quite severe repeated hemorrhages, if there are intervals in which to recover from immediate shock, may extend over a considerable time. Osler says that spontaneous cure is not very infrequent in small sacculated aneurisms of the ascending aorta. In many of these cases the disease has been undetected during life, and the obliterated sac found at the post-mortem. Their progress may be checked for a long time by the formation of thrombi, but the process of repair is always incomplete, and it is doubtful if any true aneurism of the arch, large enough to produce symptoms, has ever been healed.

THE SALIVA OF THE BABE AS A FACTOR IN THE PERFECT DIGESTION OF THE MILK IN ARTIFICIAL FEEDING AND THE MEANS BY WHICH IT IS TO BE OBTAINED BY AN ARTIFICIAL NIPPLE.

DR. W. G. A. BONVILLE, of Philadelphia, Pa., read this paper and presented a specimen of his improved nipple.

While there has been great advance in bacteriological research and milk has been Pasteurized, yet there has been no advance in the artificial nipple, although more than a thousand different shapes have been made up to the present time.

The case that led to this invention was one in which the breast of the mother had been needlessly sacrificed before marriage, and as the breasts had never functioned there was no milk in the remaining organ. This necessitated artificial feeding of the infant. Various foods and preparations were tried, but nothing was found which nourished the child, who was fast approaching starvation. The speaker used the most approved nursing bottles on the market, and commenced experimenting on himself in an attempt to study the philosophy of natural nursing in order to get the mechanical action of the jaws and to see how much should be drawn from a bottle in a given number of minutes. The importance of sucking soon became evident. In watching the baby take the common nipple it was observed that it did no sucking, but would get the long rubber nipple under its tongue and squeeze the milk out without effort. The milk either passed into the mouth too rapidly, as the hole in the nipple was of too large a calibre, or else the nipple collapsed. The ordinary nipple has three defects: it is too long, it collapses too easily and the hole is of too large a calibre. These things are all unnatural and wrong. The speaker then invented a secondary nipple to be placed inside the first. To insure a given amount of milk a hole was drilled into the inner nipple, then it made no difference how large the hole in the outer nipple was. The outer nipple was

shortened until it was the length of the mother's. The result was that the buccinator muscles had to be exerted in order to produce a suction of air from the mouth, which caused an influx into the mouth of saliva which never came in any perceptible quantity when the old style of nipple was used. By this combination the flow of milk into the mouth was controlled and the babe was forced to muscular activity of the jaws causing a flow of saliva, and it took about twenty minutes to get four ounces of milk. Nature will not permit any animal that has to suck for its sustenance to live unless it makes the forcible effort to get its milk. This provision of nature is wonderful and beneficent.

The special case referred to did well after the use of this appliance was adopted, and many other lives have been saved by its use.

The speaker made some comparisons between the saliva of the infant and the adult. In his opinion the idea that infants had no saliva at birth was incorrect. He pointed out the fact that the condition of the saliva was an important diagnostic factor in determining much that was wrong with the human system.

SOME CONSIDERATIONS OF UREMIA AND ITS TREATMENT.

DR. E. W. MITCHELL, of Cincinnati, O., read a paper with this title.

Officers appointed for the ensuing year: Chairman, Frank Billings, of Chicago, Ill.; Secretary, Carroll E. Edson, of Denver, Col.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-THIRD ANNUAL MEETING, BOSTON, MAY 24–26, 1898.

(Concluded from No. 5, p. 119.)

DR. MATTHEW D. MANN, of Buffalo, N. Y., read a paper entitled

THE SURGICAL TREATMENT OF IRREDUCIBLE RETROFLEXION OF THE GRAVID UTERUS.

In those cases in which the most improved methods, including the use of anesthesia, have failed to replace the uterus, it was advised that the abdomen be opened and the fundus pulled up by the hand introduced behind it. The following case was reported: The patient was thirty-five years of age and had given birth to several children and a number of miscarriages. When she presented herself she stated that she had not menstruated for four months, during which time she had felt very badly, having suffered great pain in the pelvis with inability to empty the rectum and bladder. Examination showed the pelvis filled by what was apparently a thin-walled fluctuating cyst situated behind the uterus and firmly fixed. The cervix was crowded forward against the symphysis, but the position of the body of the uterus could not be determined. The diagnosis lay between retroflexion of the gravid uterus or a cyst behind the uterus. All efforts to push the mass up out of the pelvis having failed, it was determined to open the abdomen. This being done showed that the tumor was the retroflexed uterus. With considerable difficulty the hand was introduced behind it and the fundus lifted up. The abdomen was then closed and the patient made an uninterrupted recovery and went on to full term. Two additional cases in which the same method had been employed were referred to by the author.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, then read a paper on

BACTERIA OF THE VAGINA AND THEIR PRACTICAL SIGNIFICANCE, BASED UPON THE EXAMINATION OF THE VAGINAL SECRETION OF ONE HUNDRED PREGNANT WOMEN.

In explaining the varying results obtained by different investigators, the author considered this fact due to faulty technique in obtaining the secretion for examination. The utmost care is necessary not to carry germs into the uterus from without and in his observations the most rigid precautions were carried out to prevent this. The external genitals were first thoroughly scrubbed and disinfected; then, with the labia held apart by the fingers of one hand to prevent contact with the instruments, a sterile-glass tube was introduced into the vagina and the secretion sucked up into it by means of a syringe attached to one end. The glass tube was then sealed at both ends in order to protect it from outside contamination until the time of examination arrived. As a result of the investigations made the following conclusions were drawn:

(1) That, as found by Kronig, the vaginal secretion does not contain pyogenic streptococci or staphylococci aureus; therefore ante-partum douches are unnecessary.

(2) That the discrepancy in the findings of different investigators is to be found in the technique of obtaining the secretion.

(3) That as the vagina does not contain pyogenic streptococci or staphylococci aureus, auto-infection is impossible; if these germs are found in the vagina during the puerperium, they have been introduced from without.

(4) That if the vagina contained streptococci, as frequently stated by Walthard, Valile and Kottman, vaginal examination with the sterile finger would be very dangerous, which is not the case.

(5) It is possible that in rare instances the vagina contains bacteria which may give rise to sapremia and putrefactive endometritis which are usually mild and do not lead to death.

(6) That death from puerperal infection is due to infection from without and is usually caused by the neglect of antiseptic precautions on the part of the physician, for in all instances save one the bacilli found in the uterus were different from those in the vagina.

PRESIDENT'S ADDRESS.

The first part of the address was devoted to a consideration of the subject of puerperal sepsis, and the latter part to a review of the progress of gynecology during the past year.

Puerperal sepsis was discussed under three heads, namely: (*a*) Sapremia, in which the septic focus remains localized and the microbe, the staphylococcus, does not enter the general circulation; (*b*) Septicemia, in which the septic germ, the streptococcus, finds its way into the general system by invading the blood; and (*c*) pyemia or the variety of septicemia in which deposits of streptococci take place in different and distant portions of the body and there produce decomposition and abscesses. The author does not consider that the attending physician or nurse is necessarily

to blame when infection occurs, for he is a believer to a certain extent in atmospheric and auto-infection, and cited a case in which a woman with a felon on one of her fingers had infected herself by introducing it into the vagina, thereby producing an intense puerperal sepsis from which she ultimately died. The importance of prophylaxis was emphasized, stress being laid upon a thorough emptying of the uterus, of placenta, membranes, and coagula, even if it be necessary to introduce the hand for this purpose, and the maintenance of as thorough contraction of the uterus as may be obtained by friction, ice, or the administration of ergot. In cases in which infection has taken place, irrigation of the uterine cavity with a mild antiseptic, after it had been entirely emptied, was recommended. If bichloride of mercury be used for this purpose, the solution should not be stronger than 1–10,000. He is opposed to the use of the curette, which he considers does harm by opening new channels for infection. In cases in which all septic decidua cannot be removed by the hand, an application to the endometrium of a strong solution (25 to 50 per cent.) of chloride of zinc or pure tincture of iodine made through a speculum, followed by irrigation with sterilized water and a uterine pack of iodoform gauze, was advocated. Packing of the uterus with gauze saturated with alcohol, as advised by Carossa, was referred to as sounding plausible but not having been sufficiently employed for its value to be definitely determined. The use of saline laxatives, as recommended some years ago by Seyfert, of Prague, for the purpose of eliminating the poison, was mentioned merely as a matter of historical interest. Serum-therapy in the treatment of puerperal sepsis has been employed by the author in three cases with results which surpassed his expectations.

In regard to the surgical treatment of puerperal sepsis, the evacuation of pus at the most accessible point was recommended. A general purulent peritonitis is to be treated by abdominal or vaginal section, the author favoring the latter route as affording better drainage, or a combination of the two if a thorough flushing of the abdominal cavity be considered necessary. He advocates the expectant method of treating pelvic exudates by means of cold when the temperature permits, with heat and blisters later, until absorption takes place or the exudate undergoes suppuration, in which latter event the abscess should be opened. Early removal of the offending organs was deprecated — still, if the focus of infection in uterus or appendages cannot be reached, hysterectomy is indicated, although he is of the opinion that it is not easy to determine just when such indication exists. He is also in favor of removing the whole uterus with its appendages in Porro's operation when performed when the uterus is already in a septic condition.

In touching upon the topics of interest which have occupied the attention of gynecologists and obstetricians during the past year, the respective merits of abdominal and vaginal section were referred to as being fairly well settled, that is, that it is best to employ the vaginal route when the object is merely to incise, open, and drain abscesses, to remove intraligamentous tumors, cysts of the broad ligament, and effusions of blood between the layers of the broad ligament or in Douglas's pouch when the latter are sealed off from the general pelvic cavity. The question of removing an ectopic gestation sac through the posterior vaginal cul-de-sac, however, is not yet settled, the majority of operators preferring abdominal section on account of the danger of uncontrollable hemorrhage in the former method. As a rule all abdominal tumors should be removed by the abdominal route, although it is possible to remove small ones — and the French surgeons even remove large ones by morcellation — through the vagina.

In the surgical treatment of retrodisplacement of the uterus three methods have been practised with apparently equal success. Alexander's operation has grown in favor. Ventrofixation has not gained in favor, nor has anterior vaginal fixation. The method of the future is probably that of shortening of the round ligaments through an anterior vaginal incision.

The electrical treatment of uterine fibroids has fallen more or less into desuetude, as but little is heard of it.

Conservative surgery of the ovaries is a hopeful subject of the future.

The management of the stump in abdominal hysterectomy is still under discussion, equally good results being claimed by the advocates of total extirpation and preservation of the cervix with its covering of peritoneal flaps. The latter method is preferred by the author.

Vaginal hysterectomy, partly by ligature and partly by clamps, is still employed. In suitable cases Byrne's method of galvano-cautery offers the best chance for permanent cure.

The artificial determination of sex as advanced by Professor Schenck, of Vienna, is rather premature and has not yet attained a position in science.

The tendency of the general surgeon to encroach upon the field of gynecology was also mentioned and was attributed to the fact that his fitness permits him to attempt any and all surgical operations. It was advised that the younger men be trained in general surgery in order that they be competent to perform any operation.

In closing, the President referred to the loss which the Society had sustained during the past year by the death of several of the members: Drs. Lusk, Kollock, Parvin, Wilson, Braxton Hicks, and Tarnier.

Dr. E. W. Cushing, of Boston, read a paper entitled

Choice of Methods in Hysterectomy.

The various methods of performing hysterectomy were considered, namely: (1) *Suprapubic*, extraperitoneal, infra-peritoneal, cervix cauterized and drained, cervix closed without drainage, cervix closed without cautery; (2) *Total Extirpation*, abdominal, vagina open (peritoneum open or closed), vagina closed; (3) *Combined Operation* by vaginal and abdominal incision (methods of Doyen, Martin and Richelot); (4) *Vaginal*, clamps, morcellation, ligatures, abdomen drained or closed.

The author said that while the extra-peritoneal method has been abandoned by all operators, it might occasionally be necessary to employ it in an emergency in which it is essential to terminate the operation quickly, as, for instance, in a case of rupture of the uterus.

Chrobak's method of dilating, cauterizing and draining with gauze the cervical canal in treating the stump infra-peritoneally was employed with success in twelve cases by the author in 1892, but he has

since abandoned this method as he considers it better to remove the whole cervix. If, however, the cervix is left, cauterization of the canal is unnecessary if the entire uterine cavity has been properly cleansed and disinfected previous to operation. The incisions amputating the uterus should be made oblique in order to leave as little of the cervical tissue as possible. The two flaps are then united, a strip of gauze wet with sublimate solution having previously been drawn down through the cervical canal to remove any secretion which may be there. Total extirpation prolongs the operation ten minutes and carries with it the danger of wounding the ureters. There is also additional danger of infection of the peritoneal cavity from the vagina. Removal of the cervix tends to diminish sexual sensation, and it is therefore desirable to leave it unless some special reason calls for its removal. In malignant disease of any part of the uterus total extirpation should invariably be performed.

When the cervix has been removed, the vagina may either (*a*) be left wide open for drainage; (*b*) the peritoneum may be closed and the vaginal raw surface left open, or (*c*) the vagina and peritoneum may be entirely closed. In the rare cases in which it is considered best to employ the first method the author makes use of a glass drainage-tube, introducing a stitch on either side to close the small lateral vessels. The use of the tube requires care. The second method is obsolete. The method always to be preferred is the closure of the vagina and peritoneum, which leaves no raw surface.

The author does not favor the combined method of operating, which he thinks complicates matters. In all hysterectomies, whether abdominal or vaginal, the rule should be to entirely close the wound unless strong reason for drainage exists.

The methods of Martin and Doyen in doing vaginal hysterectomy were described as rapid and showy in their hands but difficult of performance by those less expert, and were classed as belonging to the transition stage of hysterectomy, being but outgrowths of the combined operation.

The relative value of abdominal and vaginal hysterectomy was discussed at length, the matter of personal equation and training of the operater being considered important factors in the choice. It is the author's opinion that more dexterity and experience are required to perform the vaginal than the abdominal operation. The advantages claimed by the advocates of the vaginal method — less danger of hernia, absence of abdominal cicatrix, less time and less shock — have become relatively less during the past few years by improved technique in abdominal work. The advantages of the abdominal method are founded upon sound surgical principles, that is, greater certainty in diagnosis; greater facility in work by sight; the possibility of recognizing and overcoming unforeseen complications; greater security against wounding intestines and ureters, and better control over hemorrhage.

The use of clamps in vaginal work the author considers crude and barbarous on account of the fouling of the wound and great pain which they cause. The following conditions were given in which the employment of the vaginal operation with clamps is justifiable: (1) Inflammatory conditions in which pus is present in large amount and the weakness of the patient such that an abdominal operation would be fatal, that is, the operation being undertaken for the evacuation of pus, removal of the uterus (if found necessary) being only incidental; (2) When the patient is old or weak or abdominal walls thick, the vagina being roomy, and the uterus freely movable; (3) In cases of cancer of the cervix when conditions make it undesirable to close the opening in the floor of the pelvis and the abdominal operation would be attended by danger of sepsis.

Except under such rather exceptional circumstances, if vaginal hysterectomy is to have any standing in the present state of surgery, it must be as a very finished procedure of a very finished operator, and it must have a technique which will compare favorably with the abdominal operation.

AFTERNOON SESSION.

Dr. Howard A. Kelly, of Baltimore, read a paper on

THE TREATMENT OF MYOMATOUS UTERI.

Myomectomy was advocated in all cases in which the patient is of the childbearing age, and the author's method of performing this operation was described.

Dr. Seth C. Gordon, of Portland, Me., read a paper entitled

SUTURE AND LIGATURE MATERIAL — ABSORBABLE OR NON-ABSORBABLE.

This is a question which is still unsettled, the most radical differences of opinion being held by men equally experienced. Sims revolutionized the practice of gynecological surgery by the introduction of silver wire in vaginal operations; Emmet has continued its use up to the present day. It is extensively used by Halsted for the reason that it not only permits of absolute sterilization but is itself a germicide. With these exceptions, few operators use silver wire or any other metallic suture at the present day, although in the opinion of the author its aseptic quality entitles it to preference over nearly all kinds of non-absorbable material. In this respect, silkworm-gut more nearly approaches it than anything else.

Silk is more generally used than any other non-absorbable material, and is classed by some surgeons as absorbable, which, however, is not the case. Halsted, who uses no absorbable suture material, would prefer it could he be sure that it is free from germs. It is probable that all surgeons would prefer this provided (1) that it would not be absorbed until it had accomplished the object for which it was used, that is, to retain the parts in apposition until complete union has taken place or, in ligation of a vessel, until it is safe from hemorrhage; (2) that the material is absolutely aseptic at the time of use and will remain so until it is absorbed.

Catgut and kangaroo tendon are the absorbable materials used for sutures and ligatures, the latter having been introduced and employed for many years by Dr. Marcy, of Boston, who reports most favorably in regard to it. The author's experience with this material is limited. The chief objections to it are that it comes in short lengths, which precludes its being used in the over-and-over stitch, and the possibility of its remaining unabsorbed too long and producing fistulous openings. Catgut is used very extensively,

and its merits are that it rarely fails of absorption, and is elastic; its objections are the extreme difficulty of rendering it absolutely sterile and the fact that when made strictly aseptic its fibre is impaired to a great degree; also that it is absorbed too quickly. Halsted, who never uses catgut, makes the statement that he has never examined a specimen of catgut which was free from pathogenic germs.

With the exception of silkworm-gut for closing the abdominal incision, the author has used no non-absorbable suture material since 1884. He makes use of catgut exclusively. In hysterectomy he employs this in an over-and-over suture and all ligatures used in the pelvic cavity are carried through tissue with a needle and tied afterward in order to prevent slipping. He has also employed catgut in operations upon cleft palate — a very severe test — with most excellent results. He has not yet employed it in vesico-vaginal fistula, because the opportunity has not presented, but intends to do so when occasion offers.

The following are his conclusions:

(1) All suture material unabsorbed must necessarily have more or less exudate about it.

(2) Such exudate is of lower vitality than normal repair where tissues are just approximated and not strangulated.

(3) That a few days only are necessary to ensure repair if there be no infection, and, therefore, in cases where no great amount of strain exists, absorbable sutures only are needed.

(4) Where continued strain on the parts is inevitable, non-absorbable sutures should be used for at least two weeks but should be so placed as to be removed.

(5) For such sutures the silkworm-gut seems to be the best, as it can be made sterile and kept so.

(6) For all other purposes catgut is sufficient.

(7) That inflammation is always destructive to complete repair.

(8) The sterile catgut or kangaroo tendon should therefore fulfil all indications for suture or ligature material with the exceptions named.

DR. A. PALMER DUDLEY, of New York, read a paper, entitled

CONSERVATIVE OPERATIONS UPON THE UTERINE APPENDAGES.

As a supplement to a report of eighty-eight cases in which conservative treatment was employed, made before the New York State Medical Association in October, 1897, the author reported two additional cases in which this treatment was employed in cases of gonorrheal infection with the most gratifying results.

DR. A. J. C. SKENE, of Brooklyn, N. Y., then gave a demonstration of the method of employing his electric hemostatic forceps, which he now uses to the conclusion of all ligatures. Large hysterectomy clamps and small artery forceps were shown. Necessarily, dead tissue was employed in the demonstration, but the action of the electric current in dessicating but not cauterizing the artery was very apparent.

THIRD DAY. — MORNING SESSION.

DR. J. WESLEY BOVEE, of Washington, read a paper entitled

THE PATENCY OF THE STUMP AFTER SALPINGECTOMY.

The failure to close the canal of the Fallopian tube stump, or its subsequent restoration after salpingectomy, is considered by the author an important factor in causing many of the imperfect cures which result from this operation. The consequences of permeability of the canal of the stump are pregnancy and peritoneal or stump infection. The former is a condition which means eminent danger in some cases and is to be avoided, but by far the most serious danger is that of infection spreading from the uterus to the peritoneum. As a means to prevent these consequences, the author suggests that occlusion of the canal be effected by cutting out the Fallopian tube, with a wedge-shaped piece of the uterus, penetrating deeply into the uterine wall, by two perpendicular incisions about an inch long in front of and behind the tubo-uterine junction, and closing the muscle and peritoneum by suture.

THE SURGICAL TREATMENT OF STERILITY; HOW FAR IS IT JUSTIFIABLE OR EXPEDIENT?

The paper of DR. MATTHEW D. MANN, of Buffalo, dealt with the surgical treatment of sterility when due to malformations or diseased conditions of the vulva, vagina and uterus. Appropriate operations were recommended for vaginismus, atresia of the vagina and stenosis of the uterine canal.

DR. W. GILL WYLIE, of New York, read a paper on

THE TREATMENT OF STERILITY DUE TO ANTEFLEXION OF THE UTERUS, STENOSIS OF THE UTERINE CANAL AND ENDOMETRITIS.

He advised divulsion of the canal, curettement and the introduction of a curved uterine drainage-tube, this treatment to be repeated if the dysmenorrhea, which usually accompanies these cases, is not relieved. The patient is to be kept in bed during the week following the curettement and introduction of the tube. The latter is then removed. If the treatment is repeated, the patient may be permitted to return to her home and the tube left *in situ* for a month or longer, being cautioned to avoid violent exercise, such as horseback riding and sexual intercourse. The author has employed this method with marvellous success in a number of cases.

DR. A. F. CURRIER, of New York, read a paper on

REMOVAL BY ABDOMINAL INCISION OF THE REMAINS OF AN EXTRA-UTERINE FETATION OF FOURTEEN YEARS' DURATION.

The patient was a large, well-developed woman, forty-five years of age, a school teacher, who had one child twenty-seven years of age. After a period of sterility lasting twelve years, she again became pregnant. The usual enlargement of the abdomen took place and there were no unusual symptoms during the pregnancy. She passed the ninth, tenth and eleventh months without any sign of labor until August 2, 1884 (at the end of the eleventh month), when she was suddenly seized with intense pain in the abdomen accompanied by profuse hemorrhage from the uterus. Delivery did not take place and she was confined to her bed until October, at which time she was able to return to her work although still feeling weak. She consulted an eminent gynecologist, who appeared to be puzzled by the abortive attempt at labor, but who advised her not to submit to operation so long as she felt well. The abdominal enlargement gradually diminished and her health remained excellent until June, 1897. In August of that year she strained herself slightly in getting off a street car and in a few days began to suffer intense pain in the abdomen. When first seen by the author,

on August 15th, the pain had diminished but she was septic and anemic. There was also a mitral regurgitation murmur. The vaginal vault was indurated, and an abdominal tumor extended into both iliac fossæ and two inches above the umbilicus. A diagnosis of retained fetus or a very large fibroid tumor of the uterus was made. Operation was postponed on account of the patient's weakness until the first of December. During this time two fistulæ formed, one in the rectum, and one in the left ischio-rectal fossa, through which small pieces of bone were discharged. There was a very offensive diarrhea, and one severe hemorrhage from the rectum had occurred. The fistulous tract in the ischio-rectal fossa was first curetted and packed and an abdominal incision made. The intestines were so matted together that separation was impossible and a putrid, offensive fluid filled the lower portion of the abdomen. The fetal mass, encapsulated by a thin layer of new tissue and surrounded by intestines, was at once felt when the hand was introduced. All traces of placenta and membranes had disappeared and nothing remained of the fetus but the bones, disarticulated with the exception of the spinal column and part of the skull. These were removed one by one, the pelvic cavity flushed with hot water and packed with gauze to control the free oozing of blood. Later, the pads were removed and a packing of iodoform gauze substituted. The thin walls of the sac were then stitched with silkworm-gut to the abdominal wound, and the upper and lower angles of the latter closed. The patient stood the operation well. When the dressings were removed, at the end of twenty-four hours, the wound was found to be covered with feces, and when the stitches were removed on the twelfth day it burst open, as might have been expected. The patient recovered from the operation promptly in spite of this, and was greatly improved in health when, in January, 1898, an attempt was made to close the abdominal wound. Closure of the ischio-rectal fistula had already taken place. It had previously been ascertained that the fistula into the rectum was so situated that it was impossible to reach it from below to close it; therefore a large drainage-tube was introduced through the abdominal wound and drawn down into the rectum, its upper end remaining in the abdominal incision, before the latter, which was between eight and ten inches long, was closed about it with silver wire sutures after the granulation tissue had been scraped away. The drainage-tube was removed at the end of six days, during which time the wound remained clean. The rest of the wound was then curetted and closed. Upon removing the first sutures a few days later it was found that the wound had healed in part of its length. Gas and feces were passed by the rectum, but a little leakage occurred at the abdominal wound, and it became evident that healing by granulation was the only hope. At this time the patient's condition was good; she was able to sit up and had a good appetite. In February she took cold, bronchitis set in, the kidneys failed to act, uncontrollable vomiting set in, and finally, uremia with suppression of urine, and death took place ten weeks from the date of the first operation. No autopsy was obtained.

The author reported the case on account of the remarkable toleration of the foreign body by the patient in spite of the fact that the sac wall was very thin. Such toleration, however, has been noted before. As long ago as 1679 a case of extra-uterine gestation, in which the products of conception were retained during a period of twenty-five years, was reported by Blizny, of Paris. In 1767, Nebel, of Heidelburg, reported a case in which fetal bones had been retained for fifty years in a woman's abdomen.

Dr. M. D. Mann: In looking up the literature of this subject, the author need not have gone so far back. If he had looked in the "Transactions" of this Society he would have found that the late Dr. Lusk, of New York, two years ago reported two cases in which the fetus had been retained ten and thirteen years respectively, and showed one of the specimens. I myself have operated upon a case in which the fetus was carried for eight years. In this case the pregnancy was not abdominal, as the fetus was found in the horn of an undeveloped uterus.

Dr. Hunter Robb, of Cleveland, read a paper on

ENDOTHELIOMA LYMPHANGIOMATODES OF THE CERVIX UTERI.

A case of this kind was reported, the diagnosis being made by careful microscopical examination. The clinical appearance of the cervix was that of malignant disease in an inoperable stage.

Dr. Eugene Boise, of Grand Rapids, Mich., read a paper entitled

POST-OPERATIVE SALINE INFUSIONS.

The author advocated the employment of saline infusion by the intra-venous method after operation in cases in which the patient is suffering from shock and loss of blood, and also in cases of sepsis, uremia and intestinal obstruction.

Dr. Henry D. Fry, of Washington, then read a paper on

STREPTOCOCCIC INFECTION IN CHILDBIRTH AND THE APPLICATION OF SERUM-THERAPY.

The author is strongly in favor of this method of treatment and gave the results of its use in a number of cases to justify his position. The paper elicited so much discussion *pro* and *con* the use of antistreptococcic serum in puerperal and non-puerperal sepsis, that, upon motion of Dr. W. K. Pryor, of New York, a committee consisting of Drs. Fry, Williams, Reynolds and Pryor was appointed by the President to investigate this method of treatment and report at the next meeting of the Society.

Before the final adjournment, Dr. Paul F. Mundé, the retiring president, introduced his successor, Dr. Joseph Taber Johnson, of Washington, and announced that the next annual meeting of the Society will be held in Philadelphia, during the fourth week in May, 1899.

Recent Literature.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In Twenty Volumes. Vol. XIV, "Infectious Diseases." New York: William Wood & Co. 1898.

This volume of the "Twentieth Century Practice" contains about 600 pp., and is a continuation of the general subject commenced in Volume XIII — "Infectious Diseases."

The diseases treated of in this volume are: scarlet fever, measles, German measles, chicken-pox, glandular fever, whooping-cough, cholera infantum, cholera nostras, Asiatic cholera, dengue, beri-beri, miliary fever, Malta fever.

Of the contributors, five are of the United States — Drs. Dillon Brown, Forchheimer, Jacobi, Norton and O'Dwyer; two are of London — Sir Joseph Fayrer and Dr. Dawson Williams; one, Dr. Netter, of Paris; one, Dr. Rumpf, of Hamburg; one, Dr. Sodré, of Rio de Janeiro; one, Dr. Bruce, of South Africa. The international character of the encyclopedia is emphasized, and the general standard well sustained in the different articles.

Fat and Blood. An Essay on the Treatment of Certain Forms of Neurasthenia and Hysteria. By S. WEIR MITCHELL, M.D., LL.D. Seventh edition, 800 pp. 177. Philadelphia: J. B. Lippincott Company. 1898.

This work is so well known, since its publication over twenty years ago, as the first complete presentation of the "rest cure," that little need be said of this new edition except that the chapter on Massage has been wholly re-written in order to note some of the latest studies of its effects, and that various minor changes have been made in other chapters.

Annual Report of the Medical Examiner-in-Chief of the Royal Arcanum. For the year ending December 31, 1897. By SANFORD HANSCOM, M.D. East Somerville. 1898.

As a general rule very little information can be gathered from the proceedings of the various assessment insurance organizations, fraternal or otherwise, which have sprung up and flourished throughout the land in the past quarter of a century. It is, therefore, with much satisfaction that we turn to this report of Dr. Hanscom as one of more than ordinary interest.

It appears that the death-rate of the Royal Arcanum, per thousand members, in an average membership of about 190,000 distributed in 41 states and provinces, was 9.43, or a little less than that of the previous year.

The order was unusually fortunate during the year in losing only 61 members, who died within one year after admission, out of a total mortality of 1,808, or 3.3 per cent. Of these, 12 died of pneumonia, 10 of accident, 7 of kidney disease, 5 of typhoid fever and 4 of consumption.

Special prominence has been given in this report to the subjects of suicide and consumption, two topics which engage the attention of every life-insurance organization, since a very considerable portion of the loss of every company results from these two causes. The subject of suicide is treated very fully and statistics presented relative to locality, duration of membership, domestic and social condition, occupation and age at death.

The mortality from consumption in this organization appears to have been only 13.1 per cent. of its total mortality in a period of twenty-one years, which is considerably less than the average of insurance organizations.

The death-rate at each age-period of life is also much less than that of the State of Massachusetts for similar ages, a result which is due to the careful weeding-out process, which is a consequence of good medical supervision.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 11, 1898.

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THE MEDICAL DEPARTMENT OF THE ARMY.

IN the light of the criticism to which the medical department of the army is at present being subjected, on account of the suffering which many of our wounded and sick soldiers have endured about Santiago, and while returning on the transports, a brief review of the facts of the case is demanded. The responsibility for unnecessary suffering, sickness and death among our soldiers is so grave a one that no mere criticism will suffice to allay the just resentment of the country, and it is both unfair and unjust to place the responsibility where it does not belong.

To go back to the beginning, we must remember that in the face of the recognized fact that climatic and geographical conditions made it evident that a summer campaign in Cuba must result in a large mortality among our unacclimated troops from malaria and contagious disease, our army authorities have undertaken such a campaign, and pushed it to a brilliant and successful termination. The invasion of Cuba and assault upon Santiago were undertaken in spite of the prophecies of foreign military authorities that the landing of so large a body of troops and mobilization for effective work were impossible at the time they were undertaken. If the army authorities found it necessary to land their forces in Cuba and march them over the almost impassable roads to Santiago in such haste that it was impossible to supply even adequate rations to the soldiers in the trenches, can the blame be laid upon the medical department?

If, as is known to be the fact, General Shafter's army at Tampa was completely equipped with medical supplies, can the medical department be blamed because the commanding general left behind at Tampa his reserve medical supplies and ambulance corps?

The hospital ship *Relief*, loaded with medical supplies, arrived four days after the fight at El Caney, her late arrival being due to no fault of the medical department, but to the unavoidable delays attendant upon securing and equipping such a ship.

With regard to the actual work performed in the field by the army surgeons, we have abundant testimony, including that of Dr. Senn, chief of the operating staff, to the fact that the surgeons showed most absolute devotion to duty and enormous capacity for work, and that they were provided in the field hospitals with the necessary dressings, instruments, stimulants, anesthetics and other facilities for their work.

The sufferings of the wounded from lack of clothing, tents, beds and blankets began after the surgeons were through with them, and it would seem to the unprejudiced mind that if the blame is to rest anywhere it should be upon the quartermaster and commissary departments.

The fact that the transports *Seneca*, *Alamo* and *Concho* were not provided with food, water or medical supplies, and were overcrowded, cannot be ascribed with any fairness to the medical department, which, as we believe, has been performing its work with the utmost energy and efficiency, considering the conditions with which it has been confronted. A few convalescents only were sent home on the *Seneca* to avoid overtaxing the *Relief* by the expected attack on Santiago.

It is easy for the members of the Red Cross Society, whose excellent aims have been perhaps, in some instances, defeated by the fact that the medical department, whose own ambulances and supplies had been left behind at Tampa, was unable to furnish its doctors and nurses transportation to the front, to criticise the medical department. A good deal of criticism may have perhaps resulted from the position taken by General Sternberg with regard to sending women nurses into the field with the army, where, as he has rightly said, they could not but be an incumbrance, for reasons which easily suggest themselves to the practical mind.

At the general hospitals he is undoubtedly glad of their services, and he has himself complimented the efficiency of about 100 who are on duty in the hospitals near Santiago.

Dr. Sternberg has as much right to call attention to the fact that many of the so-called nurses sent to the front by the Red Cross Association had had no special training for such duties, as the Red Cross Society has to find fault that he prefers to administer the duties of his office in his own way rather than in theirs.

When we consider the enormous disadvantages and difficulties under which the medical department of an army is always obliged to perform its duties, in time of war, and when we consider the manner in which the quartermaster and commissary departments, and the transportation departments have been managed by appointees who owe their "military" position to political reasons rather than fitness or training, we have reason to be thankful that the medical department does not come under the same head. The contract surgeons, which it has been necessary to enlist in order to help in the emergency, have at least had suitable training for their work, but unfortunately not as much can be said for too many of the staff officers, upon whose knowledge and faithfulness the health and life of our soldiers depend.

Until the medical department is made completely independent of other departments in matters of transportation, commissariat and equipment it will continue to be unjustly blamed for the results of conditions beyond its control.

The report of Captain Munson to the Surgeon-General, dated July 29th, gives an adequate idea of the great difficulties to be overcome in a campaign carried on with energy under conditions of extraordinary difficulty.

This report, without actually making suggestions, indicates the great obstacles to the efficient working of the surgical department, owing to its subordination to other departments and the necessity of a more independent organization. The lessons learned at Santiago will undoubtedly contribute valuable information for the more efficient working of the medical department of the army in the future. It must not be forgotten, however, and it is well to emphasize this point in view of the crude criticisms which are visiting this department in common with many others, not even sparing the heroes of this war, that this campaign will go down into history as a brilliant example of the extraordinary capacity of the American army and navy to conduct a successful campaign under circumstances which at the outset were deemed by military experts, not only of this but of most first-class powers, to be prohibitory.

In a military expedition of this magnitude conducted in a fever-stricken country in the midst of summer, to contend with one of the most virulent forms of epidemic fevers, to transport the sick and wounded back to this country with the surprisingly small mortality which thus far has occurred, is a feat of which the medical staff of any army in the world ought to be proud.

THE SAILING OF THE "BAY STATE."

THE hospital ship *Bay State*, fitted out by the generosity of the people of Massachusetts, through the work of the Massachusetts Volunteer Aid Association, sailed for the seat of war in the West Indies on August 6th.

For a full description of this remarkably well equipped and appointed ship we are able to refer our readers to the article on Hospital Ships with which this issue of the JOURNAL begins.

The Volunteer Aid Association is to be congratulated upon the fact that it has succeeded in fitting out at a comparatively moderate cost per fixed berth a hospital ship which possesses in certain details of her equipment new features which are a marked improvement upon any other hospital ships which have so far been sent out on their mission of relief.

Many members of the medical profession of Massachusetts organized into committees under the guidance

of the surgeon-superintendent, Dr. Burrell, have contributed earnest thought and work to the various parts of the equipment, and it is but fair to say that a great deal of her present perfection is due to the counsel and interest of Dr. Siegfried, who has from the first given the benefit of his advice and experience to those in charge of her equipment.

The arrangement of the berths, so that the frames with mattress and bed can be lifted off and carried ashore without disturbing the patient, is a feature new to this ship. Every other practicable appliance which the knowledge and ingenuity of men trained in the care of the sick could suggest has been added to her equipment.

The ventilation, bathing facilities and sanitary arrangements are of the best types yet devised, and the ventilating system is aided by numerous electric fans provided by the generosity of certain members of the Aid Association.

The ship is abundantly provided with supplies and operating facilities, and carries an able and enthusiastic staff of surgeons and nurses. There is every reason to predict that the earnest and effective work of the Association and the charity of those who have contributed to the fund will be rewarded by excellent achievements on her part in the care of the wounded and sick soldiers with whose transportation she will be charged.

THE SO-CALLED IMMUNES.

If sundry reports are to be trusted, it would appear that the immunity from yellow fever which some of our regiments are said to possess by no means corresponds with the facts. It is altogether probable that the eagerness to enlist and be sent quickly into active service has led in many instances to a claim of immunity which actually does not exist. Evidently the determination of immunity is a matter for expert decision, and it is not likely that in the hurry and rush of recruiting much expert opinion was attainable or eagerly sought. The patriotism behind the deception, if such it prove to be, will no doubt do much to mitigate public feeling, but those who are responsible in the matter should certainly be held to a strict account.

With the much stricter quarantine precautions, which under the new régime will be taken at Santiago, there is much room to hope that yellow fever may be kept well in hand during the remainder of the summer and fall, so that, whether "immune" or not, the danger from that source may not be so great as anticipated.

MEDICAL NOTES.

Nurses in the Field. — Surgeon-General Sternberg does not approve of female nurses with troops in the field. He is reported to have sent the forthcoming dispatch to the surgeon of one of the army camps stationed at Jacksonville:

"In reply to your letter of July 22, I have to inform you that I do not approve of having female nurses with troops in the field or in camps of instruction. But in general hospitals or in permanent camps, where facilities exist for taking care of them, they may render valuable assistance, and I approve of the employment of properly trained female nurses under such circumstances."

A Hydropathic Institute will shortly be added to the University of Berlin. It will be similar to those already established at the Universities of Vienna, Heidelberg and Würzburg.

Sickness at Santiago. — It is said that the epidemic of sickness which has visited the troops about Santiago reached its height a few days ago and is now gradually dying away. The number of new cases is distinctly diminishing each day, and the deaths are relatively few.

New Laboratories for the Johns Hopkins Medical School. — It is expected that the new laboratory building of the Johns Hopkins University Medical School, adjacent to the hospital, will be ready for occupation in the autumn. It will accommodate the laboratories of physiology, of physiological chemistry and of pharmacology.

Casualties of the War. — As has been stated, there have been shorter wars, but it is doubtful if there has been one in which the loss of life has been less considering the length of hostilities. Statistics show that 266 Americans have been killed in battle, with 1,400 wounded, while the Spaniards have lost 2,000 killed and 2,630 wounded.

A Complimentary Dinner to Two Denver Physicians. — The physicians of Colorado tendered a complimentary dinner to Drs. J. W. Graham and W. A. Jayne, respectively Chairman and Secretary of the local Committee of Arrangements of the late meeting of the American Medical Association, at the University Club, Denver, on the evening of Tuesday, July 26, 1898.

An Exhibit of the History of Medicine. — In connection with the Congress of German Men of Science and Physicians to be held at Düsseldorf from September 19 to 24th there will be several exhibits, one of scientific apparatus, one of scientific photography and one illustrating the history of medicine and science. According to the *British Medical Journal* the last exhibit will be particularly elaborate and will aim to give a graphic idea of the progress of medicine from the earliest times down to our own day.

The Conditions on the Transport "Concho." — The condition of the transport *Concho*, with sick and wounded soldiers from Santiago, which arrived in New York harbor on August 1st, seems to have been very similar to that of the *Seneca*, a fortnight before. Dr. A. Monae Lesser, chief surgeon of the Red Cross Society, who had himself been ill in Cuba, was the medical officer in charge, and he describes the state of

affairs on board as disgraceful. "The trip north," he states, "was a frightful one. There were bunks for 58 on the *Concho*, but more than 190 men were put on board. There was no fresh water and no ice. These men needed good, delicate food, and the only food on board was such as to turn the stomachs even of strong men." The only water on the ship had been for weeks in the casks, and there was a very inadequate supply of bedding and medical stores. During the voyage there were six deaths, and it seems reasonable to suppose that had proper provisions been made for the invalids some of these lives, at least, might have been saved.

The "Relief" Sails for Porto Rico. — On August 3d, the U. S. Hospital Ship *Relief* sailed with a full supply of medical stores for General Miles's army in Porto Rico. Surgeon-Major Torney is in charge, and in addition to the regular staff of the vessel she carried Dr. Karl Rudberg, who rendered valuable assistance to the Americans wounded at Santiago, and Surgeon-General Terry, of the National Guard of the State of New York, who is going to look after the condition of the New York troops.

The Camp at Montauk Point. — Montauk Point, at the eastern extremity of Long Island, which has been selected as the site of the camp for the recuperation of the exhausted soldiers from Cuba and Florida, is an ideal location for a summer camp, and the most energetic preparations are being made for the reception of the troops. Combined with the advantage of the most invigorating air, it is easy of access and presents the most ample facilities for salt water bathing and other healthful recreations. Col. Wm. H. Forwood, the chief surgeon of the Soldiers' Home in Washington, who is to be in charge of the medical department of the great camp, is already on the ground supervising the construction of a hospital.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, August 10, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 13, scarlet fever 16, measles 22, typhoid fever 8.

NEW YORK.

New York Gives a Convalescent Home to the War Department. — President Clausen, of the Park Department, a few days ago offered, on behalf of the city, to the War Department at Washington the West End Hotel building at Fort Washington, as a health-resort for convalescent soldiers. The offer has now been accepted, and a number of wealthy gentlemen have agreed to fully equip it for the purpose. It is a large brick building, surrounded with spacious piazzas, and admirably adapted for the purpose. It is situated on the banks of the Hudson at the lower end of Fort Washington Park, a beautiful and picturesque tract of forty-one acres acquired by the city last year, which includes the historic Fort Washington Point of Revolutionary memory.

Death of Dr. A. Irving Sternberg. — Dr. A. Irving Sternberg, a cousin of Surgeon-General George M. Sternberg, of the army, died at his residence at Gouverneur, New York, on August 1st. He was fifty-seven years of age, and a native of Seward, N. Y. He had practised successively at Glens Falls, Syracuse and Carthage, and four years ago removed to Gouverneur, where he fitted up a finely appointed laboratory and devoted himself largely to analytical work. A despatch to the *New York Herald* states that Dr. Sternberg's death was due to chlorine and sulphuretted-hydrogen poisoning received while making an analysis of the contents of a horse's stomach.

Death of Dr. Charles S. Ward. — Dr. Charles S. Ward, for many years well known as a prominent gynecologist and general practitioner in New York, died at his home in Bridgeport, Ct., on July 31st, of cerebral hemorrhage. He was born in 1843 and was graduated from Yale College in 1863 and from the College of Physicians and Surgeons, New York, in 1866. He was for a considerable time clinical assistant to Prof. T. Gaillard Thomas at the College of Physicians and Surgeons.

Death of George C. Hubbard. — Dr. George C. Hubbard, Sanitary Superintendent of the Borough of Richmond Health Department, died suddenly at his home in Tottenville, Staten Island, on August 3d, at the age of sixty-seven. He was born in Ohio. He was graduated from the Medical Department of the University of the city of New York in 1859, and then began practice with his father, the late Dr. Eben Hubbard, on Staten Island. In 1862 he was appointed assistant surgeon of the 165th Regiment, New York Volunteers, and in 1864 was made full surgeon. He served in the army until the close of the war.

Miscellany.

THE SUMMER MORTALITY IN NEW YORK.

Since the week ending July 9th, when the mortality suddenly ran up to a figure representing an annual death-rate of 26.68, notwithstanding the continuance of very hot weather, characterized for the most part by unusual humidity of the atmosphere, there has been a considerable reduction in the number of deaths in the city. In the weeks ending July 16th, 23d and 30th, the death-rate was respectively 21.53, 22.55 and 22.29. For the season of the year it shows a very fair state of the public health, and one which will compare very favorably with that in past summers.

In comparison with the death-rate of the principal cities of Great Britain, however, the showing is not a particularly gratifying one. Thus, the death-rate for the week ending July 16th in the thirty-three greater towns of England and Wales, as reported in the Journal, was only 14.7, that of London with its enormous

population being actually lower than the average, 14.1. There is this to be said, though, that in England, where the tropical heat which we have here in summer is unknown, the summer months are in fact the most healthy of the year, while in this country July and August are among the most unhealthy.

In comparing the death-rate in the different boroughs of New York during the three weeks named one is forcibly struck with the fact that Manhattan Borough, with its crowded tenement-house population, presents the most favorable showing of all the five boroughs, its death-rate being decidedly below the average. Thus the average for the three weeks in the entire city is 22.14, while the average for Manhattan is 20.87. Next in smallness of the mortality comes Brooklyn, where the conditions are more nearly similar to those existing in Manhattan than any of the other boroughs, while in the more sparsely populated districts of Queens and Richmond (Staten Island) the mortality is much greater. In the week ending July 30th, the death-rate in Manhattan was 20.85 and in Brooklyn 21.88, while in Richmond it was 32.15 and in Queens 32.19. The mortality in the last-named borough was even greater than in the Borough of the Bronx (whose death-rate was 31.97), which the reports of the Health Department always mark with a foot-note stating that the many large institutions located there raise the death-rate. The weeks ending July 16th and 23d show an exceptionally large number of deaths from tetanus, there having been four in each of these weeks.

ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE success of an annual meeting of the British Medical Association may be judged by several standards: by the character of the addresses delivered to the general meetings, by the spirit with which the discussions are maintained in the sections, and by the number of members registered as in attendance on the meeting. In no one of these respects need the Edinburgh meeting fear comparison with its predecessors. The address of Sir Grainger Stewart, on "The Reciprocal Duties of our Profession to the Community and of the Community to the Profession," was a masterly exposition from one of the leaders of medicine in this country, characterized by broad views, keen insight, and a just appreciation of the place which medicine ought to take in our complicated social system. The Address in Medicine, by Professor Fraser, was appropriately directed to the discussion of one of the most pressing questions which are occupying the minds alike of the pathologist and the clinical physician, namely, "The Toxic Origin of Disease." Professor Annandale in his Address in Surgery showed that he knew well how to commingle a serious view of the obligations of the profession to the public with that appeal to the sentiment of *esprit de corps* and the affection for an *alma mater* which is so tenderly regarded by all her children. The discussions in the sections, so far as they have gone at the time of writing, have been remarkable in many respects, not least, perhaps, for the distinction of those who have introduced the main subjects of debate. We give elsewhere a short sketch of the more important of these, and it will be seen that they cover a large proportion of the more important questions which are at present forcing themselves upon the attention of the profession. Lastly, in the matter of numbers, which in itself has an important bearing upon the success of the discussions in the sections, the meeting in Edinburgh may also be said to mark an epoch. So soon as it was announced that the British Medical Association was to hold its annual meeting in Edinburgh it was anticipated that the numbers attending would be large, but the number of members who have actually availed themselves of the invitation is in excess of the most sanguine anticipations. On the first day on which the reception-room was open it was crowded, and the total number registered was very large. At the time of writing, the returns are not complete, but already the total exceeds 1,834. This large influx of members, in many cases accompanied by members of their families, has put a severe strain upon the organization, but is has well responded to the call, and the work of registration has proceeded without a hitch. — *British Medical Journal.*

SUICIDE IN CHILDREN.

AMONG many interesting statistics which Ireland has collected in his recent book on "The Mental Affections of Children" are certain facts regarding suicide. He writes (page 286), "As might be expected, self-destruction is less frequent in childhood than at any other age. The commonest period is from forty to fifty years. Females are less prone to self-destruction than males, but this is less marked in childhood than at a later age. In France the proportion of female to male suicides under sixteen years of age in the whole population is less by one half; but taking 1,000 male and 1,000 female suicides under sixteen, the proportion is greater with females by one-third. . . . It is now increasing in frequency. From 1865 to 1874 in England, Wynn Westcott tells us there were 81 suicides from ten to fourteen years of age, 45 male and 36 female. The ratio, however, shows female precocity. Child suicide is increasing in England and in almost all the continental states. But what undoubtedly causes many cases now is over-pressure in education, while the education itself produces precocious development of the reflective faculties, of vanity and of the desires. During the last few years there have been several English cases of children killing themselves because unable to perform school tasks."

AN EXAMPLE OF COOLNESS.

THE following, if true, is an excellent example of the absolute coolness of our naval officers in time of extreme danger. The details we had not before heard. Speaking of the part played by the *Boston* in the Manila sea-fight, one of the gunners of that vessel says: "The shot that had disturbed us below nearly ended Captain Wildes's life. He was on the bridge with sun-helmet, palm-leaf fan and cigar when the shot hit the foremast three feet over his head, passed from starboard to port, cutting a shroud in the fore-rigging and burst ten feet from the side, the recoil sending the base-plug back on deck. The captain watched the shell's progress intently, then resumed his smoking. Of all the officers on the bridge he was the only one who did not dodge. He simply said, 'We were lucky, gentlemen.'"

METEOROLOGICAL RECORD

For the week ending July 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...24	30.17	70	76	63	88	90	89	S.	S.E.	12	5	R.	F.	
M..25	30.09	70	75	64	88	86	87	S.	S.	4	10	O.	O.	
T...26	29.99	74	81	66	88	95	92	W.	S.E.	10	5	O.	R.	.29
W..27	29.96	70	74	65	96	100	98	N.	E.	2	5	O.	G.	.01
T...28	29.92	68	69	66	99	98	98	E.	E.	4	3	R.	O.	.33
F...29	29.86	78	89	67	87	86	86	W.	S.W.	6	12	O.	C.	
S...30	29.88	83	92	74	85	83	84	W.	S.W.	6	3	C.	O.	.11
17														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

For the Week ending Saturday, July 30, 1898.

Cities	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping-cough.	Diphtheria and croup.
New York	3,438,899	1469	747	34.02	10.99	25.62	2.24	1.26
Chicago	1,819,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	—	—	—	—	—	—	—
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	206	101	27.44	5.39	20 09	—	3.33
Boston	517,732	208	93	19.20	12.96	13.92	.96	1.44
Cincinnati	405,000	94	—	14.84	12.72	11.66	1.06	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	103	52	33.33	9.80	31.36	.98	.98
Washington	277,000	120	47	22.95	14.45	13.60	—	3.40
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	61	27	27.88	13.12	24.60	—	—
Worcester	105,050	45	23	28.86	11.11	26.64	2.22	—
Fall River	95,919	—	—	—	—	—	—	—
Nashville	87,754	32	10	18.78	15.65	15.65	—	—
Lowell	87,193	55	28	36.36	9.10	30.94	1.82	—
Cambridge	86,812	33	21	60.60	12.12	57.57	—	3.03
Lynn	65,220	33	20	27.27	—	18.18	3.03	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	20	13	45.00	5.00	45.00	—	—
Somerville	57,977	—	—	—	—	—	—	—
Lawrence	55,510	40	31	62.50	5.00	60.00	—	—
Springfield	54,750	16	6	37.50	18.75	31.25	6.25	—
Holyoke	42,364	24	15	41.58	20.79	37.35	—	—
Salem	36,062	—	—	—	—	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Malden	32,894	12	5	25.00	41.65	8.33	8.33	—
Chelsea	32,716	22	—	8.30	4.15	8.30	—	—
Haverhill	31,406	7	3	14.21	14.21	14 21	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,990	—	—	—	—	—	—	—
Fitchburg	28,392	16	8	6.25	6.25	6.25	—	—
Taunton	27,812	13	5	15.38	15.38	15.38	—	—
Quincy	22,562	8	3	25.00	37.50	25.00	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	4	1	25 00	—	25.00	—	—
Everett	21,812	4	1	—	—	—	—	—
North Adams	19,135	4	1	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,368	7	1	—	42.63	—	—	—
Brookline	16,164	2	0	—	50.00	—	—	—
Medford	15,832	13	12	61.52	7.69	61.52	—	—

Deaths reported 1,672: under five years of age 1,274; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 766, consumption 286, acute lung diseases 134, diarrheal diseases 618, whooping-cough 41, diphtheria and croup 34, typhoid fever 26, scarlet fever 17, cerebro-spinal meningitis 15, measles 11, erysipelas 4.

From typhoid fever New York 8, Baltimore and Washington 5 each, Cincinnati 2, Boston, Providence, Nashville, Lawrence, Holyoke and Malden 1 each. From scarlet fever New York 15, Boston and Lowell 2 each. From cerebro-spinal meningitis New York 7, Boston and Lynn 2 each, Baltimore, Washington, Providence and Lowell 1 each. From measles New York 8, Baltimore, Boston and Washington 1 each. From erysipelas New York 2, Baltimore and Boston 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending July 23d, the death-rate was 15.6. Deaths reported 3,326; acute diseases of the respiratory organs (London) 148, diarrhœa 220, whooping-cough 93, measles 70, diphtheria 53, fever 28, scarlet fever 25.

The death-rates ranged from 4.6 in Croydon to 23.9 in Salford; Birmingham 17.2, Bradford 14.5, Gateshead 19.6, Hull 10.,9 Leeds 17.5, Liverpool 21.1, Manchester 17.6, Newcastle-on-Tyne 16.8, Nottingham 11.3, Portsmouth 16.2, Sheffield 16.1, Sunderland 17.0, West Ham 12.4.

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Original Articles.

ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.[1]

BY JOHN H. McCOLLOM, M.D., BOSTON.

THE use of antitoxin in the treatment of diphtheria has passed the experimental stage and its advantages in the treatment of this disease are now generally recognized. There are, however, some members of the profession who from insufficient experience or from a series of unfortunate cases are inclined to throw discredit upon the remedial power of the healing serum. There are others who claim that the administration of antitoxin has a deleterious effect on the heart, and that it is an important factor in causing renal disease. The object of this paper is to show that the death-rate from diphtheria has been materially reduced since the introduction of antitoxin, and also to prove that this agent has no injurious action on the heart, and that it cannot be considered as being the cause of the renal complications occurring in the course of diphtheria.

Diphtheria has until the past two years been a very important factor in increasing the death-rate of Boston. The percentage of mortality from diphtheria in this city from 1880 to 1894 was 30.75, while that from 1895 to 1897 was 12.61. The ratio of mortality from diphtheria per 10,000 of the living has been quite large, but during the past three years it has gradually diminished. An examination of mortuary statistics for ten years from 1888 to 1897 shows that in 1888 the ratio was 13.88 per 10,000; that in 1889 it was 15.65; that in 1890 it was 10.30; that in 1891 it was 6.23; that the rate in 1892 was 10.29; that for 1893 it was 11.45; that in 1894 it was 18.03; that in 1895 it was 11.73. It was during this year that antitoxin began to be generally used, and we see a marked reduction in the mortality rate as compared with that of the previous year. The rate in 1896 was 9.80, and that for 1897 was 7.7. If we compare the rate for 1894, which was 18.03, with the rate for 1897, which was only 7.7, it will be seen that there has been a diminution of more than one-half. If we go back to the semi-decade from 1861 to 1865 the ratio is found to be 11.10, while in the semi-decades from 1866 to 1870 and from 1871 to 1875 the ratios are 6.54 and 7.20. This low death-rate can be explained by the fact that diphtheria was not then so carefully studied as it is at the present time, and that the diagnosis was not based upon a bacteriological examination, and therefore many cases which were diphtheria were not recognized as such. For instance, in Boston in 1872 with a population of 265,764 there were only 94 deaths from this disease. It is not reasonable to suppose from what is known of the prevalence of diphtheria at the present time, that during 1872 there could have been only 94 deaths from so fatal a disease as diphtheria. It has been claimed by the opponents of antitoxin that the mortality statistics of this disease are fallacious because by a bacteriological examination many mild cases are recognized as diphtheria which formerly would have been classified as tonsillitis and other inflammatory processes in the throat. While this may be true to a certain extent, yet this so-called source of error cannot be considered an important factor in invalidating the accuracy of the statement that the ratio of mortality from diphtheria has materially diminished since the introduction of antitoxin.

In Berlin, for the four years from 1890 to 1893, the percentage of mortality from diphtheria was 35.84; that for the four years from 1894 to 1897, inclusive, when antitoxin was used, the death-rate was 18.08. As these statistics embrace a period of eight years, and comprise in the first four years 16,088 cases of diphtheria, and in the second four years 19,394 cases, the argument that not a sufficient number of cases has been observed can have no weight; neither can the argument that the type of the disease has become milder have any significance, for the time is long enough for the type to change from mild to severe, and from severe to mild.

In an analysis of the ratio of mortality in 266 German cities of about 15,000 inhabitants, it was found that the ratio of mortality, per 100,000, of the living before antitoxin was used, varied from 130 to 84 from 1886 to 1893, while the ratio from 1894 to 1897 varied from 101 to 35. It is a significant fact that during 1894, when although antitoxin was used to a certain extent it was not in general use, the ratio was 101; that when antitoxin was used more extensively, in 1895, the rate was 53; that in 1896 it was 43; that in 1897, when antitoxin was very generally used, the rate fell to 35. This diminution is so marked, and has been so gradual, that it cannot be explained by any change in the type of the disease. In Paris a similar condition has been observed; for instance, from 1890 to 1893, the deaths from diphtheria varied from 1,639 in 1890 to 1,262 in 1893. In 1894, when antitoxin commenced to be used, the number of deaths fell to 998. In 1895 there is the astonishing diminution to 411. In 1896 the deaths were 445, and in 1897 there were only 274. In Boston the diminution was nearly as great. The most important argument, however, in favor of antitoxin is the diminution in the percentage of mortality in hospital cases. It has also been claimed that these statistics were unreliable because based on mild attacks of the disease; but this statement cannot be considered correct because mild cases of disease are not sent to hospitals, as a rule.

The hospital death-rate from diphtheria before the introduction of antitoxin, not only in this country but also in Europe, was about 46 per cent. In the South Department of the Boston City Hospital since it was opened, September 1, 1895, to the first of May, 1898, there have been 4,196 cases of diphtheria treated, with a percentage of mortality of 13.7. Lest it might be said that diphtheria might have assumed a milder type during these two years and eight months, it may be of interest to note that in the first five months the percentage was 13; that in the year ending February 1, 1897, it was 15.3; in the year ending February 1, 1898, it was 13.5; and in the three months ending May 1, 1898, 11.1. The diminution in the mortality rate in the last three months can be explained by the fact that cases are now sent to the hospital earlier than formerly, and therefore they receive the full benefit of the treatment. Experience has demonstrated the importance of giving antitoxin at the earliest possible time in the course of the disease. If the moribund cases or the cases that died within twenty-four hours of admission are eliminated the death-rate of cases amenable to treatment would be about nine per cent. It must be borne in mind that these were cases of diph-

[1] Read before the Massachusetts Medical Society June 7, 1898, and recommended for publication by the Society.

theria both from a bacteriological and from a clinical point of view.

In the hospitals of Berlin the death-rate from 1885 to 1894 varied from 41 per cent. in 1885 to 28 per cent. in 1894. In 1895, when antitoxin was generally used, the percentage of mortality was 16. In 1896 it was 13, and in 1897 it was 13. In no single instance has there failed to be a diminution in the death-rate from diphtheria in hospitals where antitoxin has been used. In some instances the percentage has diminished two-thirds. In cases in private practice the diminution in the mortality rate has been equally marked. Some observers have given as low a death-rate as 8 per cent. Of course it will be said, by the opponents of antitoxin, that many of these cases were mild, and that they would not have been recognized as diphtheria if it had not been for a bacteriological examination. As the statistics on which this death-rate was based were compiled by men of large experience in the treatment of this disease, we must accept their statements as conclusive proof of the antidotal power of the anti-diphtheritic serum.

In the laryngeal cases antitoxin has been as effective as in the pharyngeal cases, a large percentage of the patients having been relieved without the necessity of an operation. In the *Report* of the American Pediatric Society on the Antitoxin Treatment of Laryngeal Diphtheria in Private Practice, comprising 1,704 cases, the statement is made that the death-rate was 21.12 per cent. Of these cases, 1,036 did not require operation, and the percentage of mortality was 17.18. In the operative cases the results have been equally gratifying. In 5,546 intubation cases, collected by McNorton and Maddren in 1892, the mortality was 69.5 per cent. In 370 intubations reported by O'Dwyer, from his personal experience, the percentage of mortality was 72.44, before antitoxin was used. In 59 intubation cases, reported by O'Dwyer, after the advent of antitoxin, the mortality was 23.7 per cent. At the Boston City Hospital, for the year ending January 31, 1895, the percentage of mortality in intubation cases was 83. Very few of these cases had antitoxin. In the South Department from September 1, 1895, to May 1, 1898, the percentage of mortality in 457 cases has been 55 per cent. For the three months ending with the 1st of May, 1898, there have been 28 intubations with 8 deaths, with a percentage of mortality of about 28. It is a very significant fact that the condition of these patients admitted in the last three months showed that they had only been ill a short time, which only emphasizes the great importance of the early administration of antitoxin and prompt operative interference. It must be borne in mind that hospital cases, as a rule, are not admitted until their condition is such that the golden opportunity for administering antitoxin has passed, and this explains the fact that the death-rate in hospital cases is a little higher than that occurring in private practice. For the relief of laryngeal stenosis — for laryngeal stenosis in the majority of instances is caused by diphtheritic membrane — intubation is the operation to be preferred. A careful analysis of a large number of cases of tracheotomy as compared with an equal number of intubations proves conclusively that the death-rate in the former operation is much larger than in the latter.

In the operative cases at the South Department broncho-pneumonia was responsible for 55 per cent. of the deaths. As broncho-pneumonia cannot be considered a part of the diphtheritic process, but is essentially a complication, the occurrence of this lesion cannot be used as an argument against intubation or against the use of antitoxin. There is no doubt of the importance of the early administration of antitoxin, not only in the laryngeal cases but also in the other forms of diphtheria.

Although intubation is the operation of election in children, tracheotomy in adults is to be preferred. The following tracheotomy case is worthy of mention, as an illustration of the beneficial effects of antitoxin: The patient was a man twenty-five years of age. He had been ill three days. There was extreme prostration, great glandular enlargement and excessive edema of the neck. The tonsils were very much enlarged, meeting in the median line. There were large patches of membrane on each tonsil, on the uvula and on the hard palate. There was intense hyperemia of the mouth. Patches of necrotic membrane could be seen; the patient was cyanotic. A strong septic odor was noticed. Heart-sounds were feeble. Temperature 99°. In short, the patient was almost moribund; in fact, when he was put in bed he stopped breathing. The trachea was immediately opened and artificial respiration was commenced. At the end of a few minutes he gasped, began to breathe naturally and became conscious. On the fifth day the membrane commenced to be detached. He had five large doses of antitoxin at intervals of twenty hours, and was very freely stimulated. On the fifth day the tube was removed. On an examination of the throat the uvula, which had been covered by the swelling of the tonsils, could be seen. At no time did the temperature rise above 104°. The patient had a moderately severe attack of pneumonia. Esophageal feeding was given owing to the inability of this patient to swallow, partly on account of paralysis, and partly on account of the swelling of the fauces. At intervals the feeding caused vomiting, and nutriment enemata were tried. He made a slow recovery owing to post-diphtheritic paralysis, which was general. There is no doubt that this patient owes his life to tracheotomy and also to antitoxin; the one would have been powerless without the other. Careful feeding and heroic stimulation were also very important factors in contributing to his recovery.

Diphtheria of the eye has been justly considered one of the severest affections of this organ, and the treatment was formerly eminently unsatisfactory. At the South Department there have been fifteen cases of undoubted diphtheria of the eye, in which in nearly every instance the sight would have been lost if it had not been for the heroic administration of antitoxin. Of these fifteen cases, in only one instance was there destruction of this organ, and in this case, if the eye had been in a normal condition at the commencement of the attack, there is no doubt that it would have been saved. When a diphtheritic membrane appears in the eye the effect of antitoxin on the membrane can be more carefully studied than when it appears in the pharynx. In some of these eye cases 2,000 units were given as the initial dose, and this was repeated in six or eight hours, if there was not a marked improvement. In some instances it was necessary to give three or four doses. Without going into the minute history of each case it is sufficient to say that these were cases of genuine diphtheria, both from a bacteriological and from a clinical point of view. In

addition to antitoxin an ointment of red iodide of mercury, and in some instances the yellow iodide in the proportion of one grain to the ounce of vaseline, was used. The pupils were dilated by atropine, and in some instances cocaine was used. In all these cases the source of infection could be directly traced to a nasal discharge loaded with the bacilli of diphtheria.

It has been stated by the opponents of antitoxin that the serum does not have any effect in restricting the formation of the membrane. In reply to this it must be said that a person who makes such a statement cannot have carefully observed his cases, for any one with experience in this remedy must have noticed the peculiar effect that the healing serum has on the membrane. If a sufficiently large dose is given, at the end of six or eight hours in favorable cases the membrane commences to roll up at the edges and is undermined. The mucous membrane of the throat near the site of the diphtheritic membrane assumes a more normal appearance. The pain and soreness diminish. If there has been glandular enlargement this also commences to diminish. If, however, this favorable change does not take place at the end of from six to eight hours, a second dose must be given, to be followed by a third, a fourth, or even a fifth, until the characteristic effect of the serum is produced. Except in the case of very young infants, the initial dose should always be 2,000 units, and even in severe cases 4,000 units may be given. The amount of fluid and not the inherent principle of antitoxin is the only possible source of danger in giving very large doses of this agent, and therefore the more concentrated the preparation the better. There is much greater danger of giving too small than too large a dose of antitoxin. The difficulty of knowing just what amount of antitoxin should be administered is due to the fact that we do not know how much of the toxin of the disease is to be antagonized. In the case of guinea-pigs that are used for testing the serum a certain definite amount of toxin is injected and this is antagonized by a certain amount of the healing serum. In the case of human beings ill of diphtheria, however, it is impossible to know the degree of toxicosis and therefore it is far better to err by giving large doses than to make the mistake of giving too small doses. There is not the slightest evidence, in a careful, clinical study of 4,196 cases of diphtheria, that antitoxin caused any serious trouble. It is true that urticaria and arthralgia have occurred in a comparatively small proportion of these cases, but these symptoms are not of sufficient gravity to deter any physician who has the well-being of his patients at heart from the administration of antitoxin. The whole matter may be summed up in these few words: Diphtheria, antitoxin, possible urticaria and arthralgia, recovery. Diphtheria, no antitoxin, probable death. Which do you prefer? A short account of the two following cases may be of interest as showing the importance of giving large doses of antitoxin in severe cases of diphtheria. It may be remarked in passing, that the hospital records contain a great number of similar cases, but to give a detailed account of each severe case cured by antitoxin would weary your patience and increase the size of this paper beyond all reason.

Case I. A girl, seven and one-half years of age. She had been ill four days. Her condition at entrance was as follows: Marked prostration, strong septic odor and great glandular enlargement. Profuse nasal discharge. Tonsils very much enlarged and covered with thick diphtheritic membrane. Uvula and hard palate covered with membrane. Temperature 100°. Pulse 120. General condition indicating profound poisoning by the toxin of diphtheria. At 5 P. M. she had 2,000 units of antitoxin. This dose was repeated in four hours. Two doses of 2,000 units each were given the next day. On the third day she had one dose of 2,000 units. On the fourth day she had two doses of 2,000 units each. After the third dose the membrane commenced to roll up at the edges, but as the improvement in the condition of the membrane was not as rapid as could be desired the remaining four doses were given. On the fifth day after entrance the throat was practically clear. In addition to antitoxin the patient was very freely stimulated, both with alcoholic and cardiac stimulants. Nourishment was an important factor in the treatment. There is no doubt that antitoxin saved the life of this patient, neither is there any doubt that if the remedy had been administered the first day of her illness the membrane would not have extended, and she would not have been so critically ill. This patient had 14,000 units of antitoxin, or in bulk 140 c. c. She made an uninterrupted recovery and was discharged well.

Case II. A girl, seven years of age, had been ill three days. On entrance she had a profuse epistaxis; there was a very strong septic odor; marked glandular enlargement and a very extensive deposit of membrane covering the tonsils, uvula, and nearly two-thirds of the roof of the mouth. She was in a state of collapse and apparently had but a few hours to live. This is the severest case of diphtheria that I have ever seen recover. On the day of entrance she had two doses of antitoxin of 2,000 units each. On the second day she had three doses of 2,000 units each. On the third, fourth, fifth, sixth and seventh days after entrance she had 2,000 units each day. In all, this patient took 20,000 units of antitoxin, or in bulk 200 c. c. There was not the slightest irritation about the point of inoculation, neither were there any untoward symptoms attributable to antitoxin. The patient made a good recovery. It is not possible to vividly portray the critical condition of this patient when admitted to the hospital. Any sane man who treated diphtheria before the days of antitoxin, if he had seen this case, could have no doubt that the patient owes her life to the administration of this agent. These two cases are of particular interest because they were cases of uncomplicated diphtheria, and therefore derived full benefit from the serum. In cases of mixed infection, although antitoxin has its antidotal effect on the diphtheritic process, it has no effect on a streptococcus poisoning, or in attacks of broncho-pneumonia. The majority of cases of diphtheria treated by antitoxin, that die, succumb, not from diphtheria but either from a streptococcus infection or from broncho-pneumonia. In the 4,196 cases of diphtheria that have been under my personal observation, in only three cases has the membrane extended after the administration of antitoxin, and then only to a limited degree. If the cases that died from broncho-pneumonia and degeneration of the pneumogastric nerve are eliminated, the percentage of deaths from uncomplicated diphtheria treated by antitoxin would be surprisingly low, so low that it would hardly be credited.

A word might be said regarding the temperature in diphtheria. A high temperature in diphtheria indicates

some complication. In an analysis of 800 cases of diphtheria, studied with this special point in view, it was observed that of 121 fatal cases, 16 had a temperature of above 103°; that the remaining 105 had a temperature ranging from normal to 103°. The high temperature in each instance was proved, either by the clinical symptoms or by the autopsy, to have been due to some complication. Of the 679 non-fatal cases, which form a part of the 800, only 55 had a temperature of 103° and above.

The importance of the early administration of antitoxin in large doses is not sufficiently appreciated. In order to get the full benefit of this agent, it must be given at the earliest possible moment. A delay of twenty-four hours frequently imperils the life of the patient, or at least prolongs the attack. Laboratory experiments have demonstrated conclusively that if the mucous membrane of animals was painted with pure cultures of diphtheria bacilli, and antitoxin was administered at the same time, no membrane was formed. If, on the other hand, twenty-four hours elasped after the animals were inoculated before antitoxin was given, membrane was formed; if there was an interval of forty-eight hours the animals gencrally died. It may be said that these are laboratory experiments and therefore the conditions are not the same as in clinical diphtheria. In reply it can be said that since the South Department was opened there have been sixty cases of diphtheria among the attachés of the hospital, and there has not been a single death. In each case antitoxin was administered upon the appearance of the very first symptoms of the disease. To antitoxin, and to antitoxin alone, must be given the credit of this gratifying result. There was a very different experience in the City Hospital proper, in the diphtheria wards, before the days of antitoxin.

It has been stated that antitoxin has an injurious effect on the heart; that cases of sudden death are more common after its administration. A careful study of diphtheria before antoxin was used shows conclusively that heart complications were exceedingly frequent, more so than at the present time. Mollard and Regaud proved by their experiments on dogs and rabbits injected with fatal doses of diphtheria toxin that the process in the heart is similar both in symptoms and in pathological appearances to that found in human diphtheria. Different observers as far back as 1878 found marked changes in the nervous structure of the heart and in the muscle itself, due to the absorption of the diphtheritic toxin. This proves that heart complications were recognized long before antitoxin was used. It is a significant fact that the majority of the patients who died from heart complications at the South Department had been ill three or four days before antitoxin was administered, and therefore the bacilli of diphtheria had sufficient time to generate toxin enough to cause degeneration of the nervous structure of the heart. This would seem to be a sufficient answer to the statement that antitoxin causes heart complications. There is not the slightest scintilla of evidence, either from the clinical study of the cases or from the result of autopsies, that antitoxin has any injurious effect upon either the heart muscle or its nervous structures.

It has been claimed that antitoxin causes albuminuria. This symptom, however, occurring in the course of diphtheria, was recognized long before antitoxin was used. An analysis of the urine in 173 cases, treated at the South Department, was made before and after the administration of antitoxin. Of these 173 cases it was found that in 99 instances albumin was absent both before and after this agent was used, which was without doubt due to the fact that the healing serum was given before the diphtheritic membrane had increased sufficiently to generate toxin enough to cause albuminuria. In 33 cases the albumin was about the same; in 25 it was diminished; in 16 it was slightly increased, but not to a sufficient extent to cause any special anxiety. The conclusion, therefore, that albuminuria, when it occurs in the course of diphtheria, is caused by the toxin of the disease and not by the healing serum, is justifiable. In investigating the results of any special course of treatment in a given disease, it is well to know something of the natural history of the disease, and the importance of this the opponents of antitoxin have not fully appreciated.

Cutaneous manifestations and arthralgia are unfortunate complications that follow the use of antitoxin, but these are never of sufficient gravity to constitute an argument against the use of antitoxin. That abscesses sometimes occur after the injection of antitoxin is a direct reflection on the man who gives the injection. If the parts are thoroughly sterilized; if the syringe is boiled a sufficiently long time; if the operator's hands are sterile; if the serum has not commenced to decompose, abscesses will not form. After a bottle of serum is opened, if the contents are not all used at one injection, the remainder should be thrown away; for if the serum is exposed to the air, even for a limited time, it is very likely to decompose, and therefore the liability to the formation of abscesses is very much increased. At the South Department, in the last few months, there have been 500 doses of antitoxin given without a single abscess, which proves that the sterilization has been effective.

Various situations have been selected for the site of the injection, but experience has taught me that the upper part of the thorax, near the posterior axillary line, is the best place. If, unfortunately, through some fault in technique an abscess does form, the pus does not burrow to such an extent as it would in the thigh or in the back. It is essential that the syringe should be made of glass with asbestos packing, so that it can be thoroughly sterilized by boiling.

From an examination of mortuary statistics, both in this country and in Europe; from a clinical study of 4,200 cases of diphtheria, it seems to me that the following conclusions are absolutely correct:

First, that the death-rate of diphtheria has been reduced to a remarkable degree by the use of antitoxin.

Second, that in order to derive full benefit from this agent it is important that it should be given in large doses early in the course of the disease.

Third, that antitoxin should be frequently repeated, until the characteristic effect is produced on the diphtheritic membrane.

Fourth, that antitoxin does not cause albuminuria, and that it has no effect in producing heart complications in this disease.

Fifth, that the physician who does not use antitoxin in the treatment of diphtheria fails to do his whole duty to his patient.

An Institute of Hygiene has been opened in Buenos Ayres. The Director of the Institute is Dr. Ferruccio Mercanti.

THE TOXIN OF DIPHTHERIA AND ITS ANTITOXIN.[1]

BY THEOBALD SMITH, M.D., BOSTON.

Ever since Roux and Yersin demonstrated the fact that diphtheria bacilli act in the main through a soluble poison or toxin which they produce during multiplication, this toxin, as well as those of other pathogenic bacteria, has been the object of considerable attention on the part of experimental medicine. The discovery of the antitoxic properties of the blood of immunized animals by Behring and Kitasato in 1890 was a signal for the renewed study of the toxin for which a true antidote has now been found.

In accordance with their facilities and command of methods, experimenters have been exploiting the nature and action of toxins in different directions, some applying the methods of physiology and physiological chemistry, others those of pathological anatomy, still others those of experimental biology. Though we must acknowledge that we are only within the threshold of this work, it is difficult not to see what progress has been made. Ten years ago a vague knowledge of the existence of bacterial poisons was all that we possessed. Of the existence of antitoxins there was not a hint. Since then a new horizon has come into view fully as great in its sweep as that which presented itself to the great discoverers in the domain of micro-organisms. For while the latter revealed to us the swarm of enemies that beset us, the former unfolds before us the forces that the animal body holds in readiness for them.

An exhaustive review of the various additions to our stock of information upon the toxin of diphtheria would far exceed the time limit of this paper. I shall, therefore, restrict my remarks to a brief *résumé* of those facts and theories which appeal to the physician who is confronted by questions not in the laboratory but at the bedside.

The immediate objects of most of the investigations made in recent years may, for convenience, be grouped under three heads:

(1) A clearer insight into the nature of toxins and of their action upon the various tissues of the body and cells composing them, in order that diphtheria as well as other toxic diseases may be better understood.

(2) More information concerning the essential nature and specific action of antitoxin; and

(3) The improvement of the antitoxins and the cheapening of their production.

Before entering upon a discussion of these subjects it may be well to briefly review the established facts and some unestablished theories concerning the action of the diphtheria bacillus itself. While attention has been most exclusively focused upon the toxin, it should be borne in mind that the bacillus is, after all, the exclusive manufacturer of this product, and that the character of the bacillus and its adaptation to the conditions found on mucous membrane determines from the beginning the gravity of the infection.

In the presence of suitable food substances, among which, in artificial cultures, the albumoses or so-called peptones seem to stand at the head, the diphtheria bacillus during its multiplication produces a poison or toxin which diffuses promptly from the cell body in which it presumably arises into the surrounding fluid. After removal of the bacilli from the culture fluid, this is capable of producing experimentally the various lesions, including paralysis, ascribed to the diphtheria bacillus when it attacks the human subject. The bacillus, conveyed from one person to another, seems to vegetate almost exclusively upon exposed surfaces, primarily mucous membranes, secondarily wounded areas of the integument.

The hyperemia and exudation which follow the earliest absorption of toxin supply the bacillus with a suitable nidus in which to continue its multiplication and produce more toxin. In this way the diseased area spreads, the poison is manufactured and absorbed more abundantly and constitutional symptoms indicated by fever and prostration appear. The microscope informs us that during the earliest local manifestations the usual scant, miscellaneous bacterial flora of the mucosa is quite suddenly replaced by a rich vegetation of the easily distinguishable diphtheria bacillus. Frequently no other bacteria are found in the culture-tube. This vegetation continues for a few days, then gradually gives way to another flora of cocci and bacilli, and finally the normal condition is re-established. The disease process is probably checked in all cases by the appearance of antitoxin in the blood produced by certain tissues or cell groups under the stimulus of the diphtheria toxin. Nowadays the antitoxin in the serum of the immunized horse is introduced to hasten and increase the resistance of the body.

Diphtheria bacilli vary slightly in their capacity to produce toxin in culture-fluids. A comparative study of over forty cultures of diphtheria bacilli from different towns of this State,[2] carried on under uniform conditions, showed that some bacilli produced from two to three times as much toxin in a given time as others. This quantitative production seems to remain indefinitely the same for each bacillus, so that the inference that there is some difference in the bacilli studied cannot well be rejected. Just what bearing this difference would have upon the human subject we cannot easily determine, owing to the many variable conditions and the now prevalent antitoxin treatment.

Given the power to produce toxin, the important question arises as to the nature of the impulses which start the multiplication of diphtheria bacilli on mucous surfaces. The commonly accepted view is that the bacilli need only to reach the throat of a suceptible individual to multiply. But insusceptibility does not necessarily prevent multiplication, for this may go on for several months after the recovery of patients. If diphtheria bacilli could multiply on mucous membranes as soon as they reach them there would be many more healthy persons than are now found harboring diphtheria bacilli. I am inclined to believe that slight injury to the membrane, such as erosions, traumatism, hyperemia followed by slight exudation due to exposure, and possibly certain undetermined chronic affections, favor and perhaps determine multiplication after infection in primarily susceptible individuals. It is highly probable that the special food needed by the diphtheria bacillus to produce toxins comes from the blood and becomes available through lesions of the mucous membrane. The injury may be of the slightest character and still afford a foothold for the bacilli, after which their multiplication with toxin production will lead to the spreading of the disease process.

This theory would help to account for the great

[1] Read by invitation before the Massachusetts Medical Society, June 7, 1898, and recommended for publication by the Society.

[2] Theobald Smith and E. L. Walker: Report of the State Board of Health of Massachusetts, 1897, p. 649.

increase of diphtheria in the colder season of the year, which increase is in part accounted for by the great overcrowding of living rooms in winter and the better opportunities for infection thereby offered. It would also account for the occasional discovery of bacilli in the throat a few days before the outbreak of the disease and harmonize with the experimentally demonstrated fact that toxins are harmless upon normal mucous membranes.[3]

While infection will always play the dominant rôle in communicable diseases, the determining influence of accessory causes must not be lost sight of. These, I think, will form the great themes of study in the near future.

The persistence of diphtheria bacilli in the throat after the local and general disturbances have disappeared has been at first regarded as of little significance because the belief had been disseminated that such bacilli had lost the power to produce toxin. This, unfortunately, is not true. In the article quoted above, special attention was paid to this important subject. Even after a prolonged sojourn in the throat the toxin production of the bacilli was up to the average. Their harmlessness to the recovered patient may be referred to the presence of antitoxin in the blood, possibly also to the fact that the substances upon which the bacilli live in the normal throat may not yield that abundance of toxin furnished by the pathological exudates. Whatever the explanation may be, the potential danger of such cases as foci of the disease must be accepted in the light of recent researches.

Another subject of great importance, clinically, is the not infrequent occurrence of so-called septic forms of diphtheria, generally referred to the presence of adventitious pathogenic forms, such as streptococci and possibly of other little known bacteria. The source of the pathogenic forms is most consistently referred to some pre-existing lesion in the mouth or throat, such as catarrh, carious teeth, and lesions of the mucous membrane. Evidently the combinations of bacteria with diphtheria bacilli may be many, and the conditions favoring them very variable. No satisfactory light has been shed upon these mixed infections. We know from almost daily experience that certain groups of bacteria growing in nutritive fluids with diphtheria bacilli favor the production of toxin materially, while other groups decidedly interfere with it. The toxin produced under such conditions is stilll diphtheria toxin, for it is neutralized by antitoxin in the usual way. The frequently unsatisfactory course of such cases may be due to the actual invasion of the body by the accessory bacteria, or to the continued expansion of the disease process locally under their influence whereby the diphtheria bacillus is favored in spite of antitoxic influences. Diphtheria antitoxin acts specifically upon diphtheria toxin and on this only. Hence the interposition of other pathogenic bacteria is likely to disturb the expected therapeutic action of the serum. The importance of early treatment becomes manifest when we consider that the septic bacteria may be at first favored by the diphtheria bacillus, and then when once established return the favor by supporting it.

It is also possible that non-specific inflammation of the throat due to pyogenic bacteria may precede the infection with diphtheria bacilli. The history of exposure and the clinical course of the disease in the early stage, combined with bacteriological examination of the throat, should bring to light such cases if they actually occur.

The extensive bacteriological studies of mixed infections made by Roux and Yersin, Martin, Barbier, Beruheim and others, have not been able to establish certain somewhat fanciful hypotheses of the action of streptococci upon diphtheria bacilli.[4] It would seem that the same processes are at work as in ordinary wound infections. The diphtheria bacillus starts the lesion; the streptococci actually present take advantage of the wound to penetrate into the body. The greater the lesion and the more abundant the injured tissue and the exudation, the more favorable the conditions for the secondary invaders. The more virulent these are, as v. Dungern [5] states, the more severe the disease that follows their entry and multiplication. This element of virulence among the secondary invaders is probably the most potent; next would come the extent of the throat lesion upon which they are grafted. In this connection it may be interesting to note that Bonhoff [6] was able to produce in guinea-pigs a glomerulo-nephritis when cultures of diphtheria bacilli were injected, which had been prepared either by inoculating streptococcus cultures with diphtheria bacilli, and thus producing mixed cultures, or else by inoculating sterile filtrates of streptococcus cultures with diphtheria bacilli.

Experiment is unable to exploit many problems relating to bacteria pathogenic to man, and we must content ourselves in many respects with hypotheses adapted as closely as possible to truths already established. This difficulty obtains when we endeavor to seek information concerning the relative virulence of bacteria as distinguished from their toxicity. By virulence I mean the power of bacilli to implant themselves upon living tissues, and resist bactericidal forces. It is evident that a virulent bacillus need not necessarily be a potent toxin producer. Virulent bacilli would include such as are readily infectious and which are likely to produce epidemics. Such epidemics need not be associated with a high mortality. The important factor is the spreading tendency of the disease. While we are able to compare the toxin production of different bacilli, the relative virulence is not determinable because there is no species of animals which contract diphtheria spontaneously and upon which experiments might be made.

Leaving now the bacillus itself, we will turn to the toxin. This is demonstrable in culture fluids from which all bacilli have been removed by its pathogenic properties. Its action upon guinea-pigs is characteristic and the same qualitatively whatever culture may

[3] After the completion of this manuscript the work of Morax and Elmassian (Annal. de l'Institut Pasteur, 1898, p. 210), on the action of the diphtheria toxin on mucous membranes, came into my hands. These authors experimented upon the conjunctiva of rabbits. By instilling with the utmost caution a few drops of very strong toxin every three minutes for a period of eight to ten hours, characteristic diphtheritic changes of the conjunctival mucosa were produced. Less prolonged contact failed to cause any reaction. The nasal mucosa remained unaffected. This experiment simply shows that all tissues must give way eventually. If we assume that the mucosa in absorbing the toxin has the power of transforming it, this power will be broken down in time. Again, the instilling of a ready-made toxin of great strength does not mean that the diphtheria bacillus is in a position to manufacture it on the intact mucosa.

[4] In artificial mixed cultures the streptococci are probably unfavorable, the staphylococci favorable, to the production of diphtheria toxin. This I infer from their general biological characters, as I have not made any direct experiments with them. Clinically, the streptococci, however, are regarded as the most dangerous secondary invaders.

[5] Beiträge zur allg. Pathol, xxi, p. 104.

[6] Hygien. Rundschau.

have produced the toxin. The course of the experimental disease is determined by the quantity of toxin administered. Thus the dose which is fatal to a guinea-pig in two and one-half days, when doubled is, as a rule, fatal in one and one-half days. With the larger number of bacilli we have studied, about 0.08 cubic centimetres of the filtered culture fluid suffices to prove fatal to a guinea-pig of 300 grams in three or four days. A few bacilli have been found which produce a toxin quantitatively ten times as strong as the average. The lesions vary in intensity according to the dose of toxin injected. When death ensues very rapidly within twenty-four hours very slight hemorrhagic changes are found at the place of injection. When the disease lasts thirty-six hours, there is more or less edema associated with hemorrhage at the place of injection, the lungs are edematous, and are compressed by a clear colorless effusion in the pleural sacs. The adrenal bodies are deeply reddened. When the disease lasts more than two days, the pulmonary edema and pleural effusion are absent, and the local edema is replaced by induration of the tissues, sloughing and ulceration. The whole process seems to be started by an injury to the vascular walls whereby edema, thrombosis and hemorrhage, and the inevitable necrosis, follow one another in proper sequence. The pulmonary edema is also apparently the result of an injury of the vascular walls by the toxin. The lesions are thus akin to those which appear on the mucous membrane in the human subject.

Further than this the guinea-pig may show lesions of the nervous system manifested by disturbances of locomotion of greater or lesser severity and extent, involving the limbs and the muscles of respiration. The following table epitomizes the cases of nervous lesions among guinea-pigs observed during the past sixteen months in the laboratory among a total of 188, under observation from four weeks to several months after inoculation. These guinea-pigs received either toxin alone or else serum and toxin. The former group received a trifle less than the minimum fatal dose, the latter ten times that dose plus the antitoxin.

Of the forty-two guinea-pigs which survived the simple injection of toxin, there were represented all gradations of local changes from the merest edema to necrosis and ulceration of the seat of injection. The table shows that four of these, or about ten per cent., became paralyzed. Of the 146 which survived the injection of the mixture of toxin and antitoxin the local lesion was in most cases absent. Of these eight, or about five and one-half per cent., became paralyzed. In all cases of paralysis there was a local lesion, either very slight or more severe, indicating that the serum added to the toxin was not quite sufficient to neutralize the latter completely. The table furthermore shows that of these twelve cases, paralysis appeared in five cases in the third week, five cases in the fourth week, and three cases in the fifth week. In almost every instance the guinea-pig had been regarded as well and placed in a large box with other recovered animals. The paralytic lesions came on quite suddenly, usually overnight. The animal was found moving with greater difficulty. The front limbs seemed to be attacked most frequently. The anterior half of the body rested upon the floor and the body was propelled by the hind feet. In one case prolonged friction with the floor of the box had produced bald spots over the sternum. When the hind limbs were affected, the body became unbalanced, the animal swayed from side to side, in severe cases rolled over and gained its equilibrium with difficulty, or else remained lying down. In a few animals respiration was affected. This became slower, sometimes labored, rarely almost convulsive. Such animals were generally incapacitated, lay on their sides and died soon or were chloroformed. In the milder forms recovery is complete in about two weeks from the date of the earliest paretic symptoms. The more severe cases die, probably of paralysis of the respiratory muscles. A consultation of the dates given in the table shows that cases of paralysis were not ob-

TABLE GIVING SUMMARY OF CASES OF PARALYSIS OBSERVED IN GUINEA-PIGS FOLLOWING THE SUBCUTANEOUS INJECTION OF DIPHTHERIA TOXIN.

Number of Guinea-pig.	Weight in Grams.	Injection of Toxin.	Injection of Serum.	Effect (Local).	Date of Injection.	Date when Paralysis first noticed.	Final Result.
519	340	Mixed Toxin, No. 44.	Horse IX.	Induration.	Feb. 10, 1897.	Mar. 11, 1897.	Recovered by March 24.
566	317	Toluol Toxin.	" X.	Very slight edema.	Mar. 26, 1897.	Apr. 24, 1897.	Dies from paralysis of respiration Apr. 25-26.
597	330	" "	" "	" " "	Apr. 20, 1897.	May 15, 1897.	Would probably die; chloroformed May 18.
604	300	" "	" III.	Very slight induration and loss in weight.	Mar. 26, 1897.	Apr. 24, 1897.	Recovered May 7.
851	251	Toxin No. 5.	" "	Induration and bald area.	Dec. 21, 1897.	Jan. 14, 1898.	Recovered January 28.
870	294	" " "	" XV.	Edema followed by small slough.	Jan. 15, 1898.	Jan. 31, 1898.	Unable to move February 5; chloroformed.
878	258	" " "	" IX.	Induration, slight slough.	Feb. 17, 1898.	Mar. 14, 1898.	Recovered March 23.
884	254	" " "	" XV.	Thin slough.	Feb. 17, 1898.	Mar. 13, 1898.	Dies March 17.
859	257	" Lb.	No serum.	Slough and ulcer.	Dec. 27, 1897.	Jan. 18, 1898.	Chloroformed.
899	277	" 3 Pf.	" "	Large slough.	Mar. 2, 1898.	Mar. 17, 1898.	Chloroformed March 21.
905	252	" No. 5.	" "	Superficial slough.	Mar. 2, 1898.	Mar. 18, 1898.	Chloroformed; extensive paralysis.
901	277	" " 6.	" "	Slough.	Mar. 3, 1898.	Mar. 28, 1898.	Chloroformed; extensive paralysis.

served from May to December. Whether the warm season or the kind of toxin employed is to blame another year may help to explain. I am inclined to consider both elements involved. Cold weather certainly makes guinea-pigs less resistant to the toxin and the frequent occurrence of paralysis with toxin marked No. 5 points to this as in part to blame.

I have introduced these facts because they serve to illustrate once again the capacity of the toxin of diphtheria freed from the bacilli to produce lesions of the nervous system akin to those which appear in man.

While the toxin of diphtheria is thus recognizable only by what it does when injected into susceptible animals, we are not, therefore, at a loss to recognize its presence, though the process of recognition involves a great amount of labor in all investigations with it. The desire to know more definitely what the nature and composition of this substance is, is a very legitimate one, not only for theoretical but also for practical reasons. A definite chemical compound taking the place of the intangible pathogenic agent in our cultures would reduce the complex machinery needed in preparing antitoxin very greatly. Hence all toxins are now objects of research. Those of vegetable origin, such as ricin and abrin, those of animal origin, including the important snake poisons and the blood serum of various animals, and those of bacterial origin, such as the toxins of diphtheria, tetanus and certain meat poisons, are receiving due attention; but the tendency to class these various poisons together and to apply to all of them the slight and often vague information obtained from the study of any one of them, has left the whole subject in a temporarily confused state. It is not improbable that they belong to quite different groups, and that each one must be carefully studied by itself. We need only to compare the different conditions under which the toxins of diphtheria and tetanus are produced — the one most advantageously with the most liberal supply of oxygen, the other only when the activities of oxygen are held in check — to realize that these products may be wholly unlike.

The toxin of diphtheria has been regarded as a ferment or enzyme by Roux and Yersin, Sidney, Martin and others. Later it was considered a toxalbumin by Brieger and Fränkel. More recently, however, Brieger recedes from that position, and regards the poison as of non-proteid nature. By an elaborate method he has concentrated and perhaps purified the poison, without, however, obtaining enough for analyses. He informs us that it is injured by acids and oxidizing agents, but left intact by alkalies and reducing agents. He found that after removing all the toxin from the bodies of the bacilli these still contained a poison, probably derived from the cell substance, which produced local necrosis and death in guinea-pigs. Antitoxin had no power to neutralize this poison. Fortunately this does not figure with any importance in human pathology, as the bacilli rarely penetrate into the body in any considerable numbers.

We know that the toxin of diphtheria is a more or less unstable body. Heated in solution for several hours at 60° C., it loses almost wholly its property of producing disease. It likewise becomes weakened by exposure to air and light. When dried it remains unchanged for a longer time. It is readily brought into this condition by adding ammonium sulphate to the filtered culture fluid. The peptones or albumoses are precipitated out and with them the toxin, which mixture is then dried *in vacuo*. Various other neutral salts, alcohol and zinc chloride cause its precipitation mixed with other substances. It is also mechanically brought down when an insoluble phosphate is formed in the fluid containing it.

In the culture-tube the formation of toxin is subjected to many vicissitudes. In the production of antitoxin serum of high potency, the most important condition to be fulfilled is the production of a very concentrated toxin; for the antitoxin, within certain limits, grows in strength with the amount of toxin the horse under treatment can endure. Hence a study of the conditions under which the largest amount of toxin will appear in cultures has become the first to be entered upon. A discussion of the results of such a study upon which I myself have been engaged during the past three years would lead us too far into details which belong strictly to specialists, more particularly as they do not as yet throw much light upon the metabolism of the diphtheria bacillus or the immediate source and mode of formation of the toxin.

The toxin of diphtheria unfolds its power when introduced under the skin, directly into the blood or into the trachea. It is inert in the digestive tract. Once in the body it seems to disappear quite rapidly from the blood. According to Bomstein only one-eighth of the injected amount was found in the blood of rabbits after one hour. After five hours one-twentieth was detected. Nor was it traceable in the organs, in the contents of the intestines, or in the urine. The inference was drawn that it was destroyed by a chemical action of the tissues. Dzierzgowski believes that it is oxidized into antitoxin in the body of highly immunized animals, a belief not generally shared at present.

(To be continued.)

THE ANTITOXIN TREATMENT OF TETANUS.[1]

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The rarity of tetanus, although it is perhaps a reason why comparatively little attention is given to its study, should not detract from our interest in a disease so sudden and severe in its manifestations, so frequently fatal, and presenting in regard to its treatment so many features which tax the skill and resources of the surgeon to the utmost. With sudden and treacherous onset, following a slight and frequently disregarded wound, it attacks its victims like lightning out of a clear sky. Its progress is frequently so rapid that when the surgeon first sees his patient he is compelled to recognize the probable hopelessness of his efforts. The surgeon who has, if only once in his life, been called upon to treat a case of tetanus, will from that moment feel an interest in the disease, which will not be diminished by its rarity, and he will be fortunate if his interest is not attended by dread.

The fact that tetanus is far more frequent in tropical climates, and that it results oftener from wounds received in war than those in civil life, gives added interest to its study to us as Americans in view of the fact that we are even now engaged in the conquest of Cuba under the heat of the tropical sun.

Almost the only result of all the investigation which has been devoted to tetanus has been an increase in our knowledge of prophylaxis, and this fact doubtless accounts for the rarity of the disease in civilized

[1] Read before the Massachusetts Medical Society, June 7, 1898.

communities at present. This prophylaxis has not resulted, however, from efforts directed especially to the prevention of tetanus but has resulted from the antiseptic method, primarily directed against the bacteria of suppuration, and incidentally resulting in the expulsion or prevention of growth of the tetanus bacilli in wounds.

As to the treatment of the fully developed disease, however, until late years all our study and effort have failed to do more than mitigate the symptoms, while they have not diminished the mortality. In the hands of the most experienced clinicians and of tyros and quacks the great majority of the acute cases have continued to die, and a small majority of the slowly developing or chronic cases to get well — no effective specific treatment having been discovered.

During the past few years, however, since the discovery by Kitasato of the prophylactic and therapeutic value of the antitoxic serum of tetanus in animals, a new hope has been held out to us that the much needed specific remedy for this disease in man might be soon elaborated. The entire success of the antitoxic treatment of diphtheria and the enormous saving of human life which has resulted therefrom have fostered the hope that in tetanus the results might prove equally brilliant. Various antitetanic serums have now been employed in the treatment of tetanus over a term of seven years. Have the results shown that an effective agent against the disease has been provided or not? Is the antitetanic serum to be relied upon in the treatment of tetanus at all, and if employed is it to be used to the exclusion of, or in conjunction with, the older methods? To answer these questions as far as is possible in the present state of our knowledge is the chief aim of this paper.

To decide as to the value of the antitoxin treatment by the comparison of statistics is even more difficult in tetanus than in any other disease. The individual experiences of any one man, or even of any single institution, within the few years that the antitoxin has been available for use, are too small to render possible such a comparison on a large scale of statistics as proved of such great value in establishing the position of the diphtheria antitoxin. Then the variability in the strength of the preparations employed, the great difficulty of determining the strength of almost any preparation, and the difficulty of deciding upon the dose which should be administered in any given case — all contribute to render the statistics of little value. In regard to this last point, I think it can be demonstrated that in the vast majority of reported cases in which the serum has been employed it has been given in absurdly insufficient doses.

The problem of dosage in the antitoxin treatment of tetanus is complicated at the very start by certain very stubborn properties of the tetanus toxin. The first and perhaps the most important of these is the fact demonstrated by Dönitz in rabbits, and by Nocard in horses, that the amount of antitoxin necessary to neutralize the tetanus toxin in the body grows enormously with the amount of time which has elapsed between the introduction of the toxin and the antitoxic serum. If an hour has elapsed between the administration of a fatal dose of toxin and that of the antitoxic serum, twenty-four times as much serum will be necessary to prevent the death of the rabbit as would have been required if the toxin and antitoxin had been introduced at the same time.

Nocard found in horses that the intravenous injection of large doses of antitoxin is sufficient to prevent the death of horses poisoned by the toxin, if the remedy was not given till after the appearance of the prodromal symptoms of tetanus. An injection twenty-four hours before the appearance of the symptoms was not sufficient — in order to save the life of the animal it was necessary to make the injection at least forty-eight hours before the prodomal symptoms appeared.

A small dose of the antitoxin is sufficient to prevent tetanus in horses if given a very short time after the animal has received a dose of toxin which is invariably fatal to control animals. The later the injection the larger the dose required, and the more unfavorable the probable results.

The explanation given by Dönitz for the large increase in the dosage of antitoxin made necessary by the lapse of time after inoculation with the poison is that the moment the tetanus poison enters the blood it begins to enter into combination with the tissues; that as time elapses this combination becomes firmer, and accordingly, increasingly large doses of the antitoxin are necessary to free the antitoxin from the combination and neutralize it.

In whatever way we attempt to explain it, the fact that in horses by the time the symptoms have developed it is too late to hope to save the life of the animal by antitoxin is a stubborn one to an advocate of the curative power of the serum in fully developed tetanus. Fortunately, however, for our hopes in regard to the antitoxin treatment in man, we find that we are dealing with somewhat different conditions. The appearance of tetanic symptoms, which is the very first possible moment at which we can begin the treatment of the disease, is by no means the signal that a fatal dose of toxin has been absorbed. The inoculation in human tetanus takes place by the introduction of the spores into a wound, under conditions favorable to their growth. We have no way of mathematically estimating the amount of toxin which has been absorbed at the time the symptoms develop, but we have plenty of evidence to show that it is not always a fatal amount, and that in all probability it varies greatly. If in human tetanus the development of the symptoms signalized the absorption of a fatal dose of toxin, the mortality of the disease would be 100 per cent. instead of about 60.

A very brief study of the clinical histories of tetanus cases will indicate that in certain cases, probably those in which large numbers of the bacilli are introduced, and in which the local and constitutional conditions are favorable to their rapid development, the disease comes on soon after inoculation, develops rapidly, tremendous poisoning of the system takes place, the symptoms are severe and unremitting, and death generally ensues.

In another class of cases the symptoms come on late and progress slowly, owing to the small number and slow multiplication of the bacilli and gradual absorption of the toxin, and we know from statistical evidence that in this milder class of cases the death has been only about 40 per cent., as compared with 80 to 90 per cent. in the acute cases.

A long period of incubation, however, does not always mean a mild or chronic case of tetanus. It is reasonable to suppose that the bacilli introduced into a wound may remain latent, or that though they multiply rapidly, the conditions for absorption of the toxin

may be unfavorable. At a later period, perhaps owing to disturbance of the wound or other cause, they may invade a larger or more absorbing area of tissue, vast amounts of the toxin may be discharged into the blood, and a rapidly fatal, acute tetanus may result. Such cases are properly classified as "acute," rather than "chronic" cases, whereas a classification based merely on the length of the incubation period would place them among the "chronic" or mild cases; the rapidity of the course of the disease and the severity of the symptoms should be considered in the classification of tetanus cases as well as the length of the incubation period.

The incubation period and rapidity of onset varying thus, in case of the usual method of infection by spores or bacilli introduced on foreign matter into wounds, we would expect a variation in the results of antitoxic treatment. This variation has been found by Dönitz and Knorr to hold true in the case of guinea-pigs. Dönitz found that of six guinea-pigs inoculated by splinters of wood bearing tetanus spores, four showed symptoms forty-five hours after inoculation and two, fifty-three hours. All were given five cubic centimetres of antitoxin (ten-per-cent. solution) and three of the four died.

In order to estimate the possible value of the antitoxic serum, we must briefly summarize the statistics of the treatment up to the present time, and analyze them, as far as possible, according to the efficiency of the preparation, the dosage, and the period of the disease at which the treatment was begun. In order to arrive at any approximation to the truth, a severe method of criticism must be adopted, such as that of Kanthack, which was adopted by Lambert in his excellent article on the subject, published in the *New York Medical Journal*, June 5, 1897.

His estimate of the mortality of tetanus previous to the antitoxin treatment was about 60 per cent. for all cases — 80 per cent. for the acute, and 40 per cent. for the chronic. He had collected up to May, 1897, 114 cases treated by antitoxic serum, with a mortality of 40.35 per cent. Six cases being thrown out for lack of sufficient data, we have left 47 acute cases with 35 deaths, a mortality of 74.46 per cent.; of the chronic type, 61 cases with 10 deaths, a mortality of 16.39 per cent.

Excluding cases which died of intercurrent diseases within twenty-four hours after treatment was begun, and also all mild cases which did not receive treatment till the 10th or 15th day of the disease, we have left 31 acute cases with 19 deaths, or 61.2 per cent. mortality; and in the chronic cases, 40 cases with 38 recoveries and two deaths, a mortality of five per cent. This will leave a total mortality of 29.57 per cent. in 71 cases.

From the literature of the subject during the year which has elapsed since Lambert's article appeared, I have been able to collect and analyze 43 cases, and to add to these five cases personally communicated by Lambert, treated with the New York State Board of Health antitoxin, and five cases treated with the Massachusetts State Board of Health antitoxin — two at the Boston City Hospital (previously reported by the writer), two recently reported by Dr. Homans (*Boston Medical and Surgical Journal*, June 2, 1898), and one acute case treated with antitoxin at the Boston City Hospital, by Dr. Abner Post — making 53 cases in all.

Of these, 33 recovered and 20 died, a total mortality of 37.5 per cent.

They may be divided according to the criteria given above into 29 chronic, of which four died, a mortality of 13.9 per cent.; and 24 acute, of which 16 died, a mortality of 66⅔ per cent. Now excluding cases which for the reasons given above cannot be fairly reckoned, we find we must omit of the chronic cases one which died and seven which recovered, leaving 21 cases with three deaths, or 19 per cent. Of the acute cases, we must exclude one case which recovered and five cases which died, leaving 18 cases with 11 deaths, or 61.1 per cent. This gives of selected cases 39 with 14 deaths, or 35.8 per cent., as compared with Lambert's 29.57 per cent.

Adding my selected cases (39) to Lambert's (71), we get a total of 110 cases, with 38 deaths, or a mortality of 34.5 per cent., an improvement on the average estimated mortality of 60 per cent. without antitoxin treatment.

Adding my unselected cases (53) to Lambert's (114), we have a total of 167 cases with 54 deaths, or about 39.5 per cent. mortality.

Against the value of these statistics may be alleged the fact that possibly more successful than unsuccessful cases have been reported; and that it may be questioned whether it is right to throw out acute cases dying within twenty-four hours of the beginning of treatment. These rapidly progressing cases are included in the pre-antitoxin statistics, which we use for comparison. Unless the antitoxin can in these acute cases neutralize enough of the toxin within twenty-four hours to save the patient, it is of no value in their treatment. It is questionable to exclude cases which certainly seem of importance in deciding the question of the value of the treatment. If these cases had been included, five fatal acute cases would have been added to my list, and have sensibly increased the acute mortality.

According to these computations, although the statistics collected by the writer have been somewhat worse than Lambert's, we find that the cases treated with antitoxin have shown a mortality about 20 to 25 per cent. less than the computed average mortality of 60 per cent. in cases not treated by serum.

In view, however, of the difficulty of estimating the previous mortality, and the probable unsoundness of our estimate, we must call to our aid other criteria for judging the results of the treatment. The next question which we should ask for this purpose is: Has any definite amelioration of the symptoms followed the administration of the antitoxic serum?

We are compelled to answer that in the majority of reported cases no evidence of relief of symptoms, following immediately or early upon the injections, was noted; and, in fact, we find in only seven of the 53 cases a distinct mention of relief of symptoms following the injections. In a few cases increase of symptoms is stated to have followed the injections.

In the cases which recovered under the treatment, although naturally a rapid or gradual improvement took place, it could not in most of the reports be connected directly with the injections.

Dangerous results which could be ascribed to the serum I have not seen reported. Many of the cases have grown worse, and certain have died soon after the serum injections, but in a disease which progresses so rapidly as tetanus, and is so capricious in the matter

of relapses and recrudescences, it is impossible fairly to attribute these instances to the serum and not to the disease.

A review of the results of serum treatment up to date, then, shows by statistics, for the fallibility of which many reasons may be alleged, a probable moderate diminution in the mortality rate, while marked relief of symptoms cannot be shown to have been a result of its use. On the other hand, it cannot be proven to have done any harm, and in fact the bulk of evidence goes to show that it is harmless.

Has it demonstrated itself worthy of further trial? We have seen that in the hands of many physicians, using many preparations, so far as we can judge from statistical evidence, the mortality has been slightly decreased under its use. Has the application of the treatment been so intelligent and efficient as to enable us to say that it has had a fair trial? Have the preparations employed been of sufficient strength, and have they been employed in sufficient doses to achieve adequate results? The answer must be an emphatic negative.

The preparations used have been of varying and unknown strength, and even in cases where reliable preparations have been used the dosage has been insufficient. Excellent authorities have miscalculated the strength of antitoxic serums. Lambert, as pointed out by Dr. Smith in his article on "Toxin and Antitoxin of Tetanus," has estimated the strength of the serum produced by the New York State Board of Health at 40 to 70 times its actual strength, and made corresponding deductions as to the dose. The dose proposed by Lambert has been shown to contain from 40 to 60 antitoxic units, instead of 8,000,000, as he estimated. Under such conditions it becomes especially difficult to determine what dose of a given preparation to employ, for it is evident that strength of the serum must be known in order to determine, as far as possible, how much will be needed to offer any hope of success.

The strength of tetanus antitoxic serum is estimated in "units," so called, of antitoxin. What is an antitoxic unit? It has been defined by Behring and Knorr as the amount of antitoxin which will neutralize 100,000 minimum fatal doses of toxin in a 250-gramme guinea-pig when injected at the same time with the toxin. A man weighing 100 pounds is about 180 times the size of a 250-gramme guinea-pig. Therefore, provided the minimum-fatal is the same per gramme of body weight, it will require 180 units to protect the man, if it is given at the same time as the toxin.

But in the treatment of tetanus in rabbits and horses we have already alluded to the enormous increase in the dose made necessary by the lapse of time since the injection. Behring has stated that not less than 500 units should be injected as the initial dose. Probably the initial dose should be even higher than this, and in the end it may prove a mechanical impossibility to inject enough serum to save an acute case.

With regard to the Massachusetts State Board of Health serum, at the time it was first put on the market last spring it contained one-half to one unit per cubic centimetre, according to Dr. Smith's estimate. Therefore, in order to administer 500 units, we should have to give as the initial dose at least 500 cubic centimetres. It will not suffice to give this amount in divided doses in twenty-four hours. In order to afford any promise of neutralising the toxin in the blood, this large dose must be thrown at once directly into a vein. Experimenters have shown again and again the necessity of throwing the antitoxin into a vein in order to get anything like a quick or definite result, and yet in only a very small number of cases has this method been adopted in practice. For effective treatment, an antitoxin somewhat stronger than that furnished by the State Board of Health would be desirable, as an initial dose of 500 cubic centimetres, or about a pint, is certainly inconveniently large and would necessitate a severe drain upon the supply. Dr. Smith last winter stated that with the continued treatment of the horses with toxin and eventual drying up of the serum, a stronger antitoxin would become available in this state, and I have no doubt that by this time it has become possible to supply a stronger serum.

Of the serum furnished by the New York State Board of Health, at the time Lambert's paper was written, about 25 cubic centimetres, or eight ounces, would be required as the initial dose, according to Behring's standard. Now in what doses have the various preparations been given? In single doses, generally of from 10 to 20 cubic centimetres; the largest single doses which have been given have been 100 cubic centimetres of the State Board of Health in the second case treated at the City Hospital, and 120 cubic centimetres in Dr. Homans's case. In both of these cases the initial dose was smaller, in one 40 cubic centimetres and in the other 60 cubic centimetres.

The list of cases treated by the Massachusetts State Board of Health serum now consists of four acute cases, all of which died, and one of moderate severity, which recovered.

Dr. Lambert writes me that in the last year he has had four acute cases die under treatment with the New York State Board of Health antitoxin, and one moderately severe case get well, which is exactly the same record as in Massachusetts.

Has any antitoxin been produced of sufficient strength to promise practical results in the cure of manifest tetanus?

Behring's dried preparation, containing 100 units in one gramme of powder, which may be dissolved and injected, is the strongest yet put upon the market. It is supplied in five-gramme powders, which contain, therefore, 500 units.

Behring's liquid serum, which he supplied before the dried preparation was put upon the market, contained 25 units in five cubic centimetres, so that of this preparation 100 cubic centimetres would contain 500 units. Have the results with Behring's stronger serum, which we must concede has been provided in most effective form for suitable dosage, shown an improvement over those of other antitoxins? (*München. med. Woch.*, 1897, xliv, 880.)

Engelmann, in August, 1897, had collected five cases treated with Behring's dried serum, three of moderate severity and one severe case had recovered, and one very severe case had died. To these may be added an acute fatal case reported by Suter, and a mild case which recovered, by the same author. With regard to Behring's liquid serum, five units to the cubic centimetre, Englemann had collected thirteen cases, of which seven had recovered and six died.

The strength of Tizzoni's serum which was one of the first to be dispensed, and the most extensively employed in Europe, I have been unable to ascertain.

Engelmann had collected 36 cases treated by this serum with only eight deaths. Only five cases had shown no result from the injections. Englemann had employed it in doses of from 12 to 30 c. c., and had had personally three successful cases of medium intensity.

In estimating the value of antitoxin in tetanus, another question remains to be answered, namely, whether the fact that sedatives have been employed in conjunction with antitoxin would affect the value of statistics.

In studying reports of cases, we note comparatively few in which the tetanus antitoxin has been used alone. It has usually been combined with a free use of the old symptomatic treatment of sedatives,—chloral, bromide, morphine, and where necessary, chloroform inhalations. This fact in no wise affects the validity of our estimate of the antitoxin treatment, for these remedies are purely symptomatic, and do not attempt, as does the antitoxin, to directly attack the disease. They have no prejudicial effect upon the antitoxin treatment, and in view of the fact that the latter rarely controls the spasms, we should not be justified in compelling our patients to do without their assistance, even in cases where it is employed.

The promotion of free diuresis by every possible method should also be practised in the treatment of tetanus, since it has been demonstrated that the kidneys are the principal channel for the elimination of the toxins.

IMMUNIZATION BY SERUM.

If any one fact with regard to the tetanus antitoxin has been demonstrated with absolute unanimity by investigators, it is that immunization is possible with comparatively small doses. Nocard, who has demonstrated the futility of the antitoxin treatment in veterinary practice, has had entirely favorable results with preventive inoculations.

It would not be by any means an unwise precaution to employ a prophylactic injection of 10 to 20 cubic centimetres of tetanus antitoxin in cases presenting lacerated and dirty wounds, which have perhaps first come under observation several days after their infliction, or in which, though seen early, thorough primary disinfection is at first impracticable. This will hold true in particular in tropical climates, where tetanus is known to be more frequent, and in the case of wounds received in war, which are especially liable to present favorable conditions for tetanus infection, and in which facilities for thorough primary disinfection are frequently not at hand. An adequate supply of antitetanic serum might well be included in the medical stores to be furnished to the United States army in Cuba.

PROPHYLACTIC TREATMENT OF THE INFECTIVE FOCUS.

The means ordinarily employed by surgeons in the treatment of dirty, lacerated and punctured wounds are directed primarily to the destruction or washing out of the ordinary pathogenic bacteria, and to the removal of dead or vitally injured tissue, and to securing thorough drainage. The rarity of the occurrence of tetanus in this vicinity is sufficient evidence that these measures are under the ordinary conditions efficient for the prophylaxis of this disease. Under certain conditions, however, we should not lose sight of the fact that the ordinary surgical antiseptics are not the most effective in their action upon tetanus bacilli. Solutions of bichloride of mercury, 1–1000, require three hours' contact to destroy tetanus spores, and a five-per-cent. solution of carbolic acid requires fifteen hours' contact. The addition of one-half per cent. of hydrochloric acid to the 1–1000 bichloride solution kills the spores in 30 minutes.

A 1–1000 solution of silver nitrate destroys the spores in five minutes. Bichloride of mercury is entirely inactive against the tetanus toxin. The iodine preparations, iodine trichloride, Gram's and Lugol's solutions, are the most effective agents we have, acting both upon the bacilli and the toxin, and should be freely used in wounds suspected of infection with tetanus, since besides being antiseptic they destroy the toxin already found.

CONCLUSIONS.

(1) Although the statistics of the antitoxin treatment of tetanus up to the present time apparently show a diminution in the mortality under this treatment, they may be legitimately criticised as on the whole insufficient in total number, in definiteness of reports, and as probably not including all fatal cases treated.

(2) The more carefully we study them the less evidence do we find that the antitoxin treatment, and not the mild course of the disease, was responsible for the favorable course in the cases which have recovered. There is no satisfactory evidence that harm has resulted from the injections.

(3) There is a distinct probability that in the great majority of the total number of cases treated the dose of antitoxin, especially the all-important initial dose, has been too small to have any possible effect upon the disease.

(4) The treatment in view of the present untractability of the disease demands further trial.

(5) There are certain means by which we can hope to make it more effective, and these include earnest efforts on the part of those engaged in the production of serum to secure a stronger product, and on the part of those who employ it in treatment to give a sufficiently large initial dose, and to give it at the earliest possible moment. The serum should be injected directly into the blood stream.

(6) The strength of the antitoxic preparations furnished by the Massachusetts and the New York Boards of Health, when first supplied, was so slight as to render it necessary to employ 500 cubic centimetres as the initial dose.

(7) A valuable field for the use of antitoxin lies in its employment for immunizing purposes.

(8) The treatment of tetanus, according to our present knowledge, should consist of:

a. Thorough disinfection of the primary focus by mechanical means, including, if necessary and practicable, amputation.

b. The thorough local employment of such chemical antiseptics as have been shown to destroy both the bacilli and the toxin.

c. Symptomatic treatment by sedatives, etc.

d. Thorough diuresis.

e. Intravenous injection of an amount of antitoxic serum which shall contain at least 500 antitoxic units at the earliest possible moment.

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SIR ASTLEY COOPER, BART.[1]

AN ESTIMATE OF HIS CHARACTER AND CAREER.

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(Concluded from No. 6, p. 130.)

To learn for himself and to tell others what he knew were the first and ever present objects of Astley Cooper. He was the first English surgeon to break away utterly from empiricism and quackery, and to lay down the sound ethical principles which we know. John Hunter had shown the way, but in his practice had fallen far short of the high standard which Cooper always maintained. Cooper was but eighteen years old when he began to teach anatomy. He was a young student; clever, assiduous, enthusiastic, and his fellows sought his advice in their dissections. His popularity constantly increased and before long he had unwittingly drawn most of the students from the teaching of the regular demonstrator. Dislike and jealousy naturally followed, and continued for some years. At length, fortunately, the regular demonstrator retired; he was a man very much Cooper's senior, and at the age of twenty-one the young surgeon was appointed demonstrator at St. Thomas's Hospital. His first act was revolutionary. The sciences of anatomy and surgery had always gone hand in hand up to this time, but Cooper had the wisdom to see that a broad and sound knowledge of the former must precede the study of the latter. In spite of great opposition he carried out his plan of separating the two courses. He had now been five years a student, and the next three years, preparatory to his starting in practice, he devoted to teaching. Long afterwards he wrote of himself:

"My industry, at this time, may be gathered from the following circumstances:

"I went to the hospital before breakfast to dissect for lecture. I demonstrated to the students before lecture. I injected their subjects. I lectured from two o'clock until half-past three. In the evening, three times per week, I lectured on surgery. I attended to the interesting cases in the hospital, making notes of them, and in this latter practice I always persevered."

Cooper's method of teaching showed from the outset his facility and adaptability; his readiness to continue what was approved by experience or to depart radically from old and dull routine. On assuming his lectureship his instant resolve was to inculcate the doctrines of Hunter — by which he meant the study of normal function and pathological change before going on to speak of diagnosis and treatment. At the outset he found himself in deep waters. The students of the day were not ready for that style of thing. The attendance, which was voluntary, immediately fell off; and he felt that his new plan was in some way at fault. At once he changed his method but not his purpose, and organized that form of combined didactic and clinical lecture which is still most popular in our schools. He has left us copious reports of his teaching, and to read these is still a novelty and a delight. His wide experience, his teeming note-books, his varied collections and his phenomenal memory combined to furnish a fascinating discourse; and his lectures, carefully planned and accurately carried out, supplied at once variety, anecdote, instruction and conviction. His statements are short, sound and lucid, his cases graphic and to the point.

As the years went by his material multiplied; at the age of thirty-two he was appointed surgeon to Guy's Hospital, and with added experience and power he came to be known far and wide as the greatest surgical teacher in Europe. His students came from England, Germany, Italy, Switzerland, France, Denmark, Sweden, Scotland, Ireland, America, until in his later life, when he went travelling about the world, he found an old friend in every village and counted his pupils by thousands. This was a great

[1] Read before the Historical Club of Johns Hopkins Hospital, May 9, 1898.

power, and needs no comment. Best known among those who came under his influence were Aston Key, Bransby Cooper, Benjamin Travers, John Morgan, John Collins Warren, John Hilton, Edward Cock, Alfred Poland and Frederick LeGros Clark.

The fine portrait, by Sir Thomas Lawrence, shows us Sir Astley Cooper in the prime of life; as such a man he is best known to us, and as such he was in the very height of his life-work. His practice at that time was enormous, and he saw more patients than would be possible for any one man in our elaborate days. After his morning dissections and breakfast he saw his gratuitous patients first, and then from nine o'clock until one came the stream of regular patients to his consulting-room. Here he did every variety of practice — from advising boarding-school girls about their diet to operations of considerable magnitude. Quick and sudden cutting was common with him. He would open a felon, excise a lipoma or amputate a finger with hardly so much as a *by your leave*.

Promptly at one o'clock, regardless of the fact that his house was still crowded with patients, he would jump into his carriage and drive rapidly to the hospital. There he always made the ward visit at once, accompanied by a throng of students. His manner towards hospital patients was always most kindly and considerate, and he used to say that he owed half his success in practice to his invariable rule of impartial courtesy towards rich and poor. At two o'clock promptly he began his daily clinical lecture, which, combined with operating, lasted from one to two hours. He then left the hospital to make his round of private calls, and arrived at home for dinner about seven o'clock. After dinner came a half-hour's nap, then the evening calls and home to bed between twelve and two.

He insisted strongly upon the value of a certain amount of general medical practice, as he felt that no surgeon who narrowed his attention to the immediate and obvious lesion under inspection could consider properly the broad bearings of surgical disease upon the individual. He always stated in his lectures that the mere operation was a small detail in surgical therapeutics; that general conditions of health required the most careful investigation — for which only a man in large general practice was competent, and that the care of the sick after operation demanded the widest experience.

Astley Cooper did not jump at once into practice. His beginnings were small enough and he met with the rebuffs and insolence with which all young professional men are familiar. Here is a schedule of his early receipts: first year 5*l.* 5*s.*; second year, 26*l.*; third year 64*l.*; fourth year, 96*l.*; fifth year 100*l.*; sixth year, 200*l.*; seventh year, 400*l.*; eighth year, 610*l.*; ninth year (the year he was appointed surgeon to Guy's Hospital) 1,100*l.* This was the year 1800 and he was thirty-two years old.

In those days, as is well known, surgeons did not make stated charges, but received the fees proffered them. In 1813 Cooper received the fee of £1,000 from a patient for the operation of lithotomy. This was the largest fee he ever received. The year 1815, when he was forty-seven years old, saw him at his busiest. After that year he moved to another quarter of London and used to take longer and more frequent holidays at Gadesbridge, his country place. In 1815 his bank book shows his professional income to have been twenty-one thousand pounds or more than one hundred thousand dollars — a far larger sum at the beginning of the century than it is now. Be it remembered, too, that this income represented the accumulation of a vast number of small fees, and that it was not derived from a limited number of high-priced operations, such as to-day constitute the practice of surgeons with large incomes.

Having reached the height of his professional career, appointments and honors were showered upon him from many quarters. He was made sergeant-surgeon to two kings, George IV and William IV; he was decorated by foreign monarchs, he was made honorary member of many famous scientific bodies and given the highest rewards of the profession at home by his contemporaries.

George IV made him a baronet, not, as Billings states, because he removed a wen from the royal head — a perversion of fact. He was made surgeon to the King and performed the trivial operation because he was the first surgeon in Europe; and because of his high professional standing he received the rank.

It is refreshing to read Cooper's estimate of himself and his career. He was a great journal writer. Here are the ingenuous remarks which he once made in his old age; they were written in Paris: "I then went to the *Soirée de l'Institut*, and this I feel to be one of the proudest days of my life; being in a foreign country, among strangers and received with so much honor. When I look back upon myself, as the son of a country clergyman, then made a lecturer on Anatomy and Surgery, F.R.S., Surgeon to Guy's Hospital, Surgeon to the King, Sergeant-Surgeon to the King, Fellow of most of the societies of Europe, Trustee of the College and an Examiner, a member of the Legion of Honor, etc., I have indeed reason to be thankful for the blessings I have enjoyed; and when I add to these my title and fortune I feel how much my success has exceeded my deserts."

"Young medical men," said Sir Astley Cooper, "find it so much easier a task to speculate than to observe; they are apt to be pleased with some sweeping theory, which saves them the trouble of observing the processes of nature." And so, as I have said, he was wont to investigate all things for himself. This habit produced in him one unfortunate effect. He seldom read. He acquired a vast amount of contemporary information from discussions with his colleagues, but he was not a reader. He wrote. He was continually talking, lecturing, writing: surgical essays, collected lectures, monographs, monumental works. From the time he joined the Physical Society as a young student, until his death, he was constantly writing and talking and rubbing against able men. When he did a new or clever operation he talked about it, and when he had concluded a series of investigations he wrote about them. He is famous for his work on aneurisms. In 1809 he tied successfully the carotid for aneurism, after having first assured himself of the safety of the operation by vivisection experiments on dogs. The case was reported in the *Transactions* of the Medical and Chirurgical Society. Six years later in 1816 he performed the operation for which he is most celebrated — ligature of the aorta for aneurism. This, too, was proceded by experiments on dogs, which proved its feasibility. The patient was a middle-aged laboring man in the Guy's Hospital wards. The aneurism was of enormous size, occupying the left

common iliac and some portion of the abdominal aorta. The man was extremely feeble and exsanguinated from repeated slight hemorrhages. The operation was done at night, of course without anesthetics, intra-peritoneally. The man survived for forty hours.

I find eight recorded cases of this operation — all fatal — but all before the days of clean surgery. Sir Astley's original case shows the patient surviving longer than did any of his successors. In 1804 he published his well-known "Treatise on Hernia"; in 1837 the "Treatise on Dislocations and on Fractures of the Joints"; and in 1840 that "On the Anatomy of the Breast." These three great works were for a long time classics, and represented a vast amount of dissection and investigation. They were published in handsome form, but were sold cheaply so as to be within easy reach of the professional public; and to their author the pecuniary return was less than nothing. During the thirty-six years between the first and last of these great works he published many monographs and volumes of collected lectures — of great value and interest to-day. Here is what the *Medico-Chirurgical Review* says of the second work, that on "Fractures." . . . "Such a mass of important practical material was never, we believe, before laid open to the public; and Sir Astley Cooper's work, when the author has moulded in the dust, will continue to exercise that influence on the surgical profession at large which he has so long exercised within the sphere of his personal acquaintance and practice."

He says of himself: "My objects in life have been three-fold: First, to learn; secondly, to practice; thirdly, to publish to the world." . . .

Like most greatly successful men, Astley Cooper grew somewhat self-assertive and arrogant as he advanced in life.

In 1825 he resigned his lectureship at St. Thomas's on account of some impairment of health. Before this resignation he supposed he understood that his associate, Mr. Key, was to succeed him. The committee saw fit, however, after accepting the resignation, to appoint a Mr. South. Sir Astley, who had a very hot temper, after attempting to withdraw his resignation, and not being permitted to do so, decided to establish an opposition school of medicine at Guy's Hospital, this largely through the good offices of a friendly treasurer, Mr. Harrison. The plan succeeded beyond all anticipation; new buildings were erected and appointments made according to his desire.

Out of this affair grew a quarrel which stopped short of a duel only. Dr. Cholmeley, a jealous person, and a physician to Guy's, made offensive remarks about Sir Astley, charging him with self-interested motives, and this in a public lecture-room. Sir Astley heard of it, and sent a demand for an apology or a hostile meeting. Eventually Dr. Cholmeley apologized, and a public retraction was made.

The School of Guy's Hospital, thus established by Cooper, continued to flourish as we know it to-day. It was ever a favorite interest of his, and on his death he left it a legacy of £4,000; the interest of which was to be paid out annually as a prize for an essay on some medical or surgical subject. This prize was open to all competitors, and the members of the hospital staff were appointed judges.

The ingenuous and childlike self-approval of many a genius is refreshing. Sir Astley Cooper was one of these pleasant persons. There is nothing offensive in his egotism. He was appointed lecturer on anatomy to Surgeons' Hall when twenty-five years old, and this is what he wrote of the transaction in his memoirs.

"I was appointed Professor of Anatomy to the Company of Surgeons, and gave lectures on executed persons, which were received with great *éclat*, and I became very popular as a lecturer. The theatre was constantly crowded and the applause excessive. My uncle was quite delighted and Mr. Cline complimentary, which he seldom was."

In another place, when writing of his lectures at Guy's Hospital, he says:

"My lectures were highly esteemed, but my operations were less thought of, . . . still I rose; for —— and ——, of Guy's, were indifferent surgeons, —— and ——, surgeons of St. Thomas's were still inferior; although excellent, Mr. Cline was very cautious never to attempt but those things which he was sure to accomplish. He was slow, cautious and successful. I was sometimes great, sometimes in difficulties from venturing too much."

Then he goes on frankly to criticise his colleagues. "Abernethy was a man of talent, with what the king would call 'a potato in his head.'"

"Sir —— —— was vain, ignorant and puzzle-headed, excessively envious of others, but he was so great a fool that he was not dangerous."

"Mr. Norris . . . was very ignorant of anatomy."

"Sir —— —— had genius but no judgment."

'Mr. —— was a tolerable anatomist but quite devoid of scientific views."

And of himself, he says: "Sir Astley Cooper was a good anatomist, but never was a good operator where delicacy was required.

"Quickness was his forte . . . his prognosis good. In judgment he was far inferior to Mr. Cline in all the affairs of life. His imagination was vivid and always ready to run away with him if he did not control it.

"His principle in practice was *never* to suffer any one who consulted him to quit him without giving him satisfaction on the nature and proper treatment of his case."

Quacks and impostors flourished in those days even as in ours. Human nature will always demand the marvellous, and a hundred years of effort have not succeeded in instructing the community, though laws have been passed and pseudo-science is widespread.

One of the most exasperating tricks of the charlatans is their frequent habit of trading on great names and truths. In our time Koch and Charcot and Lister have been so afflicted. Cooper, too, was a victim. Among other impositions was what was known as "the Ashley Cooper set." The substitution of the name Ashley from Astley saved them from the law. They advertised far and wide under the semblance of the great surgeon's name and are said to have done an extensive practice.

For all these things Cooper had a contemptuous tolerance, feeling that such evils would be righted by time.

Before his great work on hernia instructed the profession, the treatment of this condition was much neglected in England, and consequently fell into the hands of the "rupture doctors," — dangerous and unscrupulous fellows, engaged in a trade analogous to that of the so-called "bone-setters" of to-day. Cooper

did more than any other one man to break up the practice of these persons.

In the profession at large Sir Astley was universally popular. His great reputation, his charming presence, his cordial manner and his unfailing courtesy won hosts of friends, especially among the general practitioners. There is a story of his happening to be present at the Norwich Hospital in 1809, when a local surgeon was operating for the cure of popliteal aneurism. In the presence of the distinguished visitor the operator became confused, and though he had made his cut over Hunter's canal, he failed to find the artery. While he was fumbling about in hopeless indecision, Cooper, looking over his shoulder, said, "You have it there"; and passing his finger into the lower part of the wound disclosed the vessel. The whole thing was done so tactfully that the incompetence of the surgeon was not made to appear, though the kindly act won the respect and admiration of all present.

It was not in his professional relations alone that he was esteemed. He was held in the highest regard by all who came within the circle of his influence, and from the king down he was almost universally popular. This, too, in spite of a fierce and hasty temper which seemed only to endear him the more to its victims. He had little time for social amusements — but when he would take his ease, the club known as the Athletæ, composed mostly of professional men, was his favorite resource.

He was ever active. He hated delays. When travelling he always posted, and feed the post boys beyond all precedent for fast time.

One of his peculiarities was a terror of the sea. Though a bold and venturesome person in all the other affairs of life, a sea voyage was always a source of horror to him. He became excessively seasick, and this only added to his fears; on one occasion when making a voyage of rather unusual length for him, the combined effects of mental and physical distress threw him into a pitiable agony of delirium, amazing to those who knew his usual fortitude.

He was a very emotional man. In 1827 his wife died, and the event prostrated him with grief. He felt that all the interests of life were over for him. He fell into an acute physical decline, sold his town house, threw up his practice and other professional employments, and retired to his country place to pass his last days. Within a year of the sad event he had returned to town, taken another house, resumed practice with increased vigor, and married again. He was then sixty years old. He lived on until 1841 and died in his seventy-fourth year.

As with many other great but self-centred men, Sir Astley Cooper's estimate of others not in his own path of life was apt to be curiously erroneous. Successful men are wont to regard others only as they affect themselves; and to prefer unobtrusive or flattering mediocrity to abusive and pugnacious genius.

George IV was an agreeable and kindly patron to his sergeant-surgeon, so this is Sir Astley's estimate of the king — an extraordinary estimate to us, after the lapse of seventy years.

"The abilities of George the Fourth were of the first order. He would have made the first physician or surgeon of his time; the first lawyer, the first speaker in the House of Commons or Lords, though perhaps not the best divine. As a king he was prosperous, for he had the good sense to be led by good ministers. . . .

"The king was indolent, and therefore disposed to yield to avoid trouble; nervous, and therefore anxious to throw every onus from his own shoulders. He was the most perfect gentleman in his manners and address — possessing the finest person, with the most dignified and gracious condecension, yet excessively proud. . . .

"George the Fourth had an extraordinary memory — he recollected all that he had read or seen — and had the faculty of quickly comprehending everything. . . . He could quote the beauties of almost all the works in English literature. He was an excellent classic. He was a good historian. He spoke German and French as well as his own language. He spoke remarkably well. . . . His judgment was good. . . . He was in danger in coming back to England after his visit to Ireland, and behaved with the greatest coolness.

"The king was sometimes coarse in his conversation and anecdotes, but nobody could be more refined when he chose. He was witty. He woke early and read from six until ten. He did not in general drink much. . . ."

Listen to Thackeray's words about the same man, written thirty years after the king's death.

"To make a portrait of him at first seemed a matter of small difficulty. There is his coat, his star, his wig, his countenance simpering under it . . . and yet after reading of him in scores of volumes, hunting him through old magazines and newspapers, having him here at a ball and there at a dinner, you find you have nothing — nothing but a great *simulacrum*."

So William Thackeray; and so Sir Astley Cooper. We admit that at such work the pen is mightier than the scalpel.

But in spite of all this we must not think of Sir Astley Cooper as being a courtier. In his age he grew to have a great respect for the constituted authorities. To him a king was a king; and a lord was a lord indeed. England was the most beautiful and pleasant country under the heavens; and there were to be found the bravest and wisest men, the most lovely and virtuous women. He says so a dozen times, and we think none the less of him. The democracy of his ardent youth fell from him, as it has done from so many others; but his great work in life went on.

Always the honor and prosperity of his profession were most dear to him. Whenever he heard of a fine professional action he gloried in it, and he labored through life to elevate his calling in the eyes of men. His fellows recognized this in him, and this was the great reason for his constantly increasing popularity. To conquer shams, to foster science, to expose cant, to teach the truth, to seize the happy moment, to know real worth, to labor always for progress, — these were the great things in life to him.

And when at last, in old age, he died in harness, his ambition unquenched, and his courage firm and unfaltering to the last, the profession and the world felt that a monument in St. Paul's was but a humble tribute to the greatest surgeon of his time.

The Death of Professor Karl Freiherr von Rokitansky, of the Gratz Faculty, is recorded in the *Wiener klinische Rundschau* as having taken place on the 20th of June. The deceased was in his fifty-ninth year.

Clinical Department.

TWO CASES OF SPASMODIC TORTICOLLIS: ONE CURED, THE OTHER MUCH RELIEVED BY MECHANICAL TREATMENT.[1]

BY HERBERT J. HALL, M.D., MARBLEHEAD, MASS.

CASE I. Miss R., age thirty-eight, dressmaker.

Family and previous histories negative except that when the patient was about twenty years old she is said to have had a number of "falling fits." For a year previous to the attack of torticollis she worked very steadily at the sewing-machine. In July, 1896, she first noticed slight stiffness and an occasional twitch in the muscles of the neck. The spasm soon became marked and grew worse so fast that in two weeks she was obliged to give up all work. She was treated for a while by a physician who tried sedatives without effect.

December 2, 1896. On this date, a little over five months from the time of the onset, the patient was first seen by the writer. She had been in bed several days, unable to sit in a chair or to walk about without extreme annoyance from the spasm. In recumbency there were no unnatural movements of the head, but immediately on sitting up would begin a series of rhythmic contractions of the sterno-mastoid on the right and all the posterior rotators and retractors on the left.

The head was turned with much force to the left, and was markedly retracted. The deviation from the normal would sometimes terminate with the face looking directly upward, and the chin twisted as far round as the left shoulder. It was observed during the examination that a firm grasp of the hand on the nape of the neck would greatly diminish the force of the spasm.

December 7th. The spasm was at once decreased, and is now nearly controlled by the application of a spring clamp to the back and sides of the neck. The clamp is very simple in construction and does practically what the thumb and fingers do in grasping the neck from behind. It is made of light spring steel, broader than, but otherwise similar to, the ordinary trouser-guards worn by bicyclists. There is a tail-piece running from the middle of the spring about six inches down the back. When the clothing is buttoned tightly over it, this tail-piece helps to keep the spring closely applied. A gentle pressure was thus exerted on the back and sides of the neck as far forward as the anterior borders of the sterno-mastoids. The results were best when the collar was worn at about the level of the angle of the jaw. The application of this simple apparatus instantly stopped most of the twitching, although the symptoms would at once recur upon removal of the pressure.

January 1, 1897. The apparatus has been worn constantly, but it can now be discarded for several hours a day without recurrence of the spasm. There is still some rigidity and a slight tendency to clonic spasm in the affected muscles.

February 3d. On account of his interest in these cases, the patient was sent to Dr. George L. Walton, for observation and prognosis. Dr. Walton referred the case to Dr. F. I. Proctor, who later reported astigmatism and obliquity of the axis of vision in both eyes. Glasses prescribed.

[1] Read in part at the March meeting of the Essex South Division of the Massachusetts Medical Society, and presented by title at the May Meeting of the American Orthopedic Association in Boston.

January 20, 1898. Neither clamp nor glasses have been worn for several months. Patient does a little sewing and attends to ordinary household duties without inconvenience. She has taken several long walks. There is a slight left torticollis of a fixed and painless nature due to a permanent contraction of the affected muscles. She turns her head freely in any direction. There is no retraction.

SUMMARY OF CASE I.

A severe spasmodic torticollis of five months' standing was at once relieved and has remained under control for two years by the simple expedient of spring pressure on the cervical muscles. For several weeks the spasm recurred on removal of the apparatus, but later no appliance was necessary. The affection was brought under control in spite of the existence of marked ocular defect. No drugs, no exercises, no massage or electricity, no complicated fixation apparatus were used in bringing about the desired result.

CASE II. Miss F., age thirty-two, shoe-shop hand. Referred by Dr. Herbert W. Newhall, of Lynn. Family history, negative. Previous history, always reasonably well until present attack. Duration of symptoms five weeks. Gradual onset without pain. The patient has worked for five or six years in a shoe-shop, doing always the same work, which requires the constant use of a light hammer, pounding on the leather.

February 29, 1898. Physical examination showed a young woman of medium height and rather slight build. Nothing abnormal was observed except the severe spasm which kept in constant action the right sterno-mastoid and the left posterior cervical rotators. The motions of the head in this case were very similar to those observed in the preceding case, but they could not be so easily controlled by the hand. A reasonably good prognosis was given, however, and measurements were taken for a spring collar.

March 6th. The clamp has been worn one week and there is plainly an improvement, although the spasm is still severe.

Treatment continued and supplemented by a series of Delsarte movements designed to limber up all joints, and to bring about a relaxation of all the muscles of the body and especially of the muscles of the neck. Strangely enough the exercise which seemed to relax the neck most is one in which the hands are shaken violently and loosely on the relaxed wrists.

March 30th. The head can now be held straight for a brief space of time and the existing spasm is less severe. A Thomas's collar stuffed with oakum has been substituted for the clamp which, though padded and covered with chamois-skin, has caused chafing.

April 12th. There has been very decided improvement remarked by every one who sees the patient. The twitching, although it does not carry the head so far or so forcibly, is still annoying and various forms of head support have been tried without relief. The patient herself decides to go back to the collar as being of the greatest service. The patient's day has been plotted out carefully into periods of rest and exercise. New exercises have been introduced which tend to develop the entire body. She can now voluntarily relax the tense sterno-mastoid. The eyes have been examined by Dr. Cobb, of Lynn, who finds in this case also astigmatism and oblique visual axis.

May 1st. The spasmodic motions have almost

wholly ceased. Neither glasses nor collar are worn constantly. She cannot turn her head beyond the middle line to the right, but it can be held very nearly front without difficulty. A slight tonic contraction of the right sterno-mastoid turns the head persistently a little to the left; there is no retraction. Much walking or over-exercise of any kind causes pain in the left shoulder. The patient has not from the first been allowed to use her eyes for reading or sewing. To-day she admits that she has read a short story, but without relapse.

May 30th. Slight improvement from last note. The patient is very cheerful, and expects to be able to turn her head freely in any direction before long.

SUMMARY OF CASE II.

A severe case of spasmodic torticollis of five weeks' duration, somewhat relieved at once and in three months practically cured by the spring clamp supplemented by a careful system of gymnastics designed to relax as well as to develop all muscles, and especially those of the neck. Very little attention was given to the development of the muscles directly opposed to those involved in the spasm. The exercises were designed to improve the general poise and to secure good muscular control throughout the body.

GENERAL CONSIDERATIONS.

The experience of the men in this vicinity in dealing with this disease has been rather unsatisfactory. Some cases have been passed along from general practitioner to orthopedist, to neurologist, to masseur, to ophthalmologist and finally to the general surgeon, all this perhaps without improvement.

When all other means fail the general surgeon stands ready to do neurectomy on the spinal accessory and the posterior cervical branches. Even then, with all the posterior rotators and the sterno-mastoid divided, the twitching may not cease. This most persistent and annoying spasm is not accompanied by any structural changes either in the nerve trunks, or in the nerve centres.[2] It seems therefore to some extent psychic or mental.[3]

Referring presumably to complete fixation, Richardson and Walton state that "Mechanical support to the head has proved not only inefficacious but unendurable, the restraint only adding to the discomfort and tendency to increase spasm."[4] They also refer to a case temporarily benefited by massage. Drugs, electricity and nerve stretching have proved of no value.

It is certain that some cases must come to operation; nothing else will put a stop to this misguided activity, which though usually painless is so fatiguing and annoying that the patient gladly welcomes the most severe surgical measures.

The operation as practised by Dr. M. H. Richardson is very complete. The results in the cases which Dr. Richardson and Dr. Walton have seen, are certainly excellent, although a second, or even a third operation has sometimes proved necessary, as the spasm is transferred to new sets of muscles. It is this rapid transferrence, for instance, from the sterno-mastoid to the posterior rotators of the opposite side which is the worst objection to operation.

[2] Gowers: Diseases of the Nervous System, vol. ii, page 669.
[3] P. Redad: Le Torticolis et son Traitement, page 119.
[4] Richardson and Walton: The Operative Treatment of Spasmodic Torticollis with Cases. American Journal of the Medical Sciences, January, 1895.

On the other hand, mechanical support is capable of a wider field than mere fixation as by the plaster helmet or a rigid head support of any kind. Dr. A. T. Cabot has one case of cure by the plaster helmet, but for the most part such treatment is absolutely unbearable. The pain becomes severe and when the restraint is removed the spasm returns, so much increased as often to cause muscular strain of serious proportions. Supports of wire from the shoulders of such construction as to resist the spasm by means of stiff springs against the side of the head, do some good but do not seem to have brought about permanent improvement. Why the simple spring clamp which the writer has used should succeed so well in these cases cannot be given a clear explanation. A study of the contractions of spasmodic torticollis in their resistance to various restraining forces has convinced the writer that very mild pressure applied properly at the back and sides of the neck by the hand or a simple clasp of metal will give better control of the motion of the head than will any method which disregards the neck and seeks to hold the head itself. This is easily verified by trying it on the voluntary motions of a normal neck. Besides this, the skull on account of its rounded surface is difficult to hold. Control by pressure on the neck allows a fair amount of freedom to the head, a factor which is apparently necessary to success. Probably there are cases which will not yield at all to such measures as these, but the results which this paper records are certainly encouraging and should lead to an extended trial of the methods suggested.

Reports of Societies.

MAINE MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, AT PORTLAND, JUNE 1-3, 1898.

THE meeting opened at 10 o'clock A. M., Thursday, June 1st, DR. W. K. OAKES, of Auburn, the President, in the chair.

The meeting was noted throughout for the small amount of outside business, and the promptness with which the papers announced were presented and discussed. After the usual preliminary business and the reading of the report of the treasurer,

DR. G. H. CUMMINGS, of Portland, read a paper on

UTERINE DISPLACEMENTS.

It favored operative measures rather than the usual unsatisfactory treatment by continued replacement and pessaries. In prolapsus, ventral fixation was objected to as offering probable interference with future labors, and amputation of the wedge-like cervix or Alexander's operation were urged as preferable.

DR. JOHN F. THOMPSON, of Portland, pointed out the fact that restoration of the fascia support from below helped many of these displacements more than operations upon the ligaments above. So far as a pessary supplied this support it did good. He favored any operation for retro-displacements which would furnish a posterior ligament to hold the uterus up and the cervix back. Dr. Cummings said he would not favor radical operations until other measures had been carefully tried.

DR. J. F. HEIN, of Waterville, exhibited a rhinolith weighing 275 grains removed from the right nasal cavity.

DR. W. L. COUSINS reported a successful case of anastomosis of the gall-bladder with the large intestine by means of the Murphy button.

DR. B. B. FOSTER, of Portland, reported the removal of a needle and fragment of thread from the prostatic urethra. The patient claimed to have swallowed it.

The Committee of Visitors to the Portland School for Medical Instruction reported commending its work as a preparatory school and urged that, in all schools conferring degrees where recitation methods are not in use, there should be required work in some such school in addition to the usual certificate of a preceptor.

AFTERNOON SESSION.

DR. J. A. FITZHUGH, of Amesbury, was introduced as a delegate from the Massachusetts Medical Society, and DR. HENRY P. WATSON, of Manchester, from the New Hampshire Society.

The President's Address followed. Its most important reference was to the alleged abuse of medical charity in hospitals and dispensaries, and the unfair competition said to be exercised by institutions against the profession.

The remedy suggested was some agreement among the superintendents of the different institutions upon a scale of reasonable extra fees for operative work or special advice upon the basis of those charged for similar work in private practice.

It recommended a change in the method of conducting the usual annual entertainment, which is provided at the expense of local physicians, and urged the desirability of the removal of the Medical School of Maine to Portland. As usual the address was referred to a special committee for report.

ACCIDENT AS A CAUSE OF APPENDICITIS

was the title of a paper by DR. WM. B. SMALL, of Lewiston. The greater prevalence of the affection in young adult males, subject to more vigorous muscular exertion, by which the contents of the cecum may be forced into the appendix to act as an exciting cause, and the greater liability of such individuals to accident from occupations were given as reasons for the title of the essay. Cases were reported in detail showing appendicitis to have occurred as a result of direct and indirect external violence, sudden strains and repeated strong contractions of the abdominal muscles.

Localized infectious diseases as a sequence of slight injuries are more common than usually appreciated.

The conclusions of the paper were:

(1) That general prevalence of catarrhal conditions of the bowels, perhaps as an accompaniment or result of the grippe, is responsible for a large part of the general increase in prevalence of appendicitis.

(2) That accidental injuries, strains and work demanding strong contraction of the abdominal muscles, may be held accountable for the greater prevalence of the disease in males.

(3) That such injuries and strains act by forcing material loaded with the bacteria which produce appendicitis from the cecum into the appendix, and that these germs here find favorable soil for their multiplication and development.

(4) That the disease is of growing medico-legal importance, because of its traumatic character, and may give rise to proper suits for damages or valid claims against accident insurance companies.

CÆSAREAN SECTION ON ACCOUNT OF DERMOID CYST

was the title of a paper by DR. J. A. DONOVAN, of Lewiston. A tumor was discovered during pregnancy, but the patient refused operation. When labor ensued, delivery was only effected by the abdominal section. The mother died three days later, the child survived. He asked if it would have been better to have removed the tumor, and then allowed the uterus to have delivered itself in the usual way.

DR. S. C. GORDON, of Portland, said that the mortality of Cæsarean section was much reduced by improved methods of operating. A short incision and a compression band of sterile gauze instead of a rubber band have greatly aided in this direction.

DR. S. P. WARREN, of Portland, had tabulated statistics of five cases of Cæsarean section in Maine, all fatal except one, and that one occurred before the days of antiseptic surgery.

DR. S. E. WEBBER, of Calais, reported another case at Robbinston, the mother a dwarf, in which both mother and child survived.

A cordial invitation was received from the physicians of Bangor and vicinity to hold the meeting of 1899 in that city, which was afterwards unanimously accepted.

DR. GEORGE W. WAY, of Portland, reported a case of cerebro-spinal meningitis followed by a most remarkable range of temperature, rising from 100° F. to 105.2° on the sixth day, dropping in forty-eight hours to 95° and rising to normal again in two days.

EVENING SESSION.

DR. JAMES A. SPALDING, of Portland, under the title of

NOTES IN A FIRST SERIES OF 10,000 EYE PATIENTS,

detailed an interesting series of observations in twenty-five years of ophthalmic work.

DR. S. P. WARREN, of Portland, referred to the great advantage of vertical writing in public schools in avoiding visual disturbances among the pupils.

A report was received from the committee appointed last year to consider the question of the abuse of medical charities. Beyond recommending that the system of fees for hospital services be made more nearly proportionate to the circumstances of patients, and that the profession stop sending to hospitals patients who can pay a private physician, no solution was offered for the problem.

No action was taken by the Association beyond accepting the report.

THE RELATION OF MEDICAL EXPERTS TO THE COURTS AND TO EACH OTHER

was a paper by DR. W. P. GIDDINGS, of Gardiner, which called out an animated discussion. The essayist thought much of the discredit resting upon this kind of evidence was due to incapacity on the part of witnesses, and a disinclination to give positive answers even when such were possible. He advocated the enactment of a law to oblige the plaintiffs in malprac-

tice suits to file a bond sufficient to cover the costs of court in case they were defeated.

Dr. C. D. Smith, of Portland, said much of the trouble arose from the fact that men are willing to appear as experts upon matters of which they have only ordinary or general information. He saw nothing discreditable or unprofessional in a physician acting as adviser to counsel in the preparation or conduct of a case, provided he did not appear upon the stand as an expert witness. He favored legislation which would give the court power to summon experts at request of either counsel as is now provided in case of litigation over land titles and boundaries.

Dr. S. H. Weeks, of Portland, thought it most important that all the experts be given opportunity to learn all the facts in a given case and to consult before appearing in court, and introduced a resolution to the effect that such was the sentiment of this Association, which was adopted. Judge L. A. Emery, of the Maine Supreme Court, who was invited to speak, said little was to be expected from legislation; efforts at reform must begin and go on in the medical profession. The proposition of the essayist with reference to the filing of bonds in malpractice suits was condemned as class legislation, to which the physician was no more entitled than any other litigant. He approved the plan for selection of experts by the court.

Dr. S. C. Gordon, of Portland, said no physician had any right to go into court as an expert unless he honestly believed in the position he assumed. He said the plan of conferences had been customary in Cumberland County for years.

Dr. J. F. Thompson, of Portland, urged the substitution of the medical examiner system in place of the coroner.

Resolutions were adopted providing for the appointment of a legislative committee to secure the passage of laws providing for the calling of experts by the courts and the inauguration of the medical examiner system.

SECOND DAY. — MORNING SESSION.

The Association met at 9.30 o'clock.

The report of the necrologist showed the deaths during the year of nine members, two of them ex-Presidents of the Association.

Dr. Henry B. Palmer, of Farmington, read a paper on

TUBERCULAR BONE DISEASE.

Tubercular bone disease was stated to rarely follow lung infection, but the converse is often true. Tuberculous products about joints are often encapsulated, and cure supposed to have been attained, but the old disease often lights up after slight injury.

Aspiration and iodoform injection were recommended for tubercular accumulations in joints prior to radical operation. He believed cure to be possible under certain favoring conditions of rest, natural vitality and improved nutrition.

Dr. B. T. Sanborn, Superintendent of the Maine Insane Hospital, read a paper emphasizing the necessity of additional hospital accommodations for the insane, and the Association adopted a resolution urging the legislature to complete the partially-built hospital at Bangor.

Dr. Hannibal Hamlin, of Orono, read a paper on

MYXEDEMA AS A FORM OF ANEMIA.

AFTERNOON SESSION.

The Association met at 2.20 o'clock, and proceeded to the election of officers and committees for the ensuing year. The list is as follows:

President, Dr. C. O. Hunt, Portland; First Vice-President, Dr. W. B. Small, Lewiston; Second Vice-President, Dr. S. J. Bassford, Biddeford; Treasurer, Dr. Augustus S. Thayer, Portland; Recording Secretary, Dr. Chas. D. Smith, Portland; Corresponding Secretary, Dr. Hannibal Hamlin, Orono.

Board of Censors: Drs. Alfred King, Portland; E. A. Porter, Pittsfield; J. K. Phillips, Bangor; G. M. Woodcock, Bangor; J. E. Tuell, Augusta.

Committee on Publication: Recording Secretary (*ex officio*) Drs. C. D. Smith, Portland; W. B. Moulton, Portland; E. J. McDonough, Portland; J. F. Hill, Waterville; C. E. Williams, Auburn.

Business Committee: Drs. D. A. Robinson and W. L. Hunt, Bangor.

Dr. Geo. P. Morgan, of Dover, N. H., read a paper on

TALIPES EQUINO-VARUS,

recommending cuneiform osteotomy as the most promising operative procedure. The probable etiology was regarded as retarded or non-rotation, for the congenital form and infantile paralysis for the acquired variety.

Dr. H. H. Brock advocated manipulation and fixation for mild form, but for the more extreme cases forcible restoration under ether, maintaining position by plaster-of Paris splints, repeating the manipulation at intervals of three or four weeks. For cases with too great deformity for this method of treatment, he advocated excision to secure restoration without forcible manipulation, with fixed dressing till good bony union is secured.

The Committee on Recommendation of the President's Address, reported, recommending some form of annual entertainment at the expense of the Association and endorsing the different suggestions of the address. The Association indicated its approval of all except the first, and appointed a committee to devise some plan by which the expense could be borne by those participating.

Dr. Wellington Johnson, of Augusta, read an interesting paper detailing the difficulties of the management of an epidemic of diphtheria in the isolated French settlement of Madawaska, where restrictive measures were hampered by the ignorant and nomadic character of the inhabitants and the distance from the settlements. Formaldehyde, disinfection and the free use of antitoxin in curative and immunizing doses checked a serious epidemic in a little over a fortnight.

Dr. S. H. Weeks, of Portland, made a statement relative to the efforts which had been made by the Faculty of the Medical School of Maine to secure its removal to Portland, for the advantage of increased clinical facilities. Provisional consent had been given by the boards of the college in face of considerable opposition, but a lot had been secured, and a part of the money raised. He asked for the substantial influence and support of the Association for the school in which the Association has always had an active interest.

Resolutions were adopted urging upon the college authorities the imperative necessity of such removal,

and providing for the appointment of a committee of co-operation of two from each county, to act with a committee from the faculty of the school.

At 4 o'clock the Association and invited guests with visiting delegates were entertained by the physicians of Portland at Riverton Park. A banquet was served, and an hour given up to informal social enjoyment.

The evening session was devoted mainly to the Annual Oration, by Roswell Park, M.D., of Buffalo, upon the subject of

IATRO-THEURGIC SYMBOLISM.

The oration was an exposition of the relation between emblems of special significance to both the Christian church and the medical profession. Those selected were the tree and grove, the fish, the dove and the serpent. An historical analysis of their derivation showed their evolution from the symbols used in ancient phallic worship, doubtless arising from the desire of primitive people to express their veneration for the mystery of nature's creative power, and also their ideas of the perpetuation of life, in its constant generation and regeneration.

DR. ALFRED KING, of Portland, read a paper on

THE LOCAL TREATMENT OF SINUSES OF THE EXTREMITIES.

These were regarded as infected granulating wounds, and his principles of treatment were the removal of foreign bodies, sterilization of the tract, efficient drainage, careful apposition of the sides of the wound, rest, protection and the improvement of local nutrition.

Gauze drains were condemned in favor of a method described as "pressure drainage," all the indications of treatment except removal of foreign bodies and sterilization being efficiently secured by it. The material used is sterilized oakum, applied in layers three or four inches thick and bandaged tightly by roller bandages. The elasticity of the oakum prevents injurious pressure, it brings about drainage without regard to gravity, it brings the walls of the soft parts into apposition, it prevents the action of muscles and joints, it removes and prevents capillary and venous congestion without preventing arterial flow. The author's practice was to allow the first dressing to remain two days, then remove, cleanse the outlet, and apply fresh oakum. As the discharge decreases, the compress may be kept on longer and longer.

The method is not applicable to those cases of hip-joint disease where the acetabulum is diseased and perforation has taken place into the pelvis, nor to sinuses whose source is within or above the pelvis.

DR. H. F. TWITCHELL, of Portland, advocated curetting, irrigations of normal salt solution and iodoform injections followed by the application of pressure as described.

DR. E. H. HILL, of Lewiston, said to stop discharge and heal the wound is not all, we must make every effort to save the strength, usefulness and symmetry of the limb. He thought Senn's method of the implantation of decalcified bone gave the best results in securing the healing of cavities with unyielding walls, always a most difficult and tedious process.

The closing session was on Friday morning.

The censors made final report, recommending that the next meeting be held in Bangor on the first Wednesday, Thursday and Friday in June, 1899.

The following appointments were made:

Visitors to Insane Hospital: Drs. Addison S. Thayer, Portland; W. P. Giddings, Gardiner; W. B. Small, Lewiston.

To Portland School for Medical Instruction: Drs. C. H. Cumston, Brunswick; J. L. Bennett, Brighton.

Medical School of Maine (two years): Dr. J. L. Horr, Westbrook.

Delegates to American Medical Association: Drs. S. H. Weeks, Portland; F. C. Thayer, Waterville; C. W. Bray, Portland.

New Hampshire: Drs. W. T. Goodale; W. G. Maybury, Saco.

Vermont: Drs. A. Millett, Searsmont; E. A. Porter, Pittsfield.

Massachusetts, 1899: Drs. E. M. Fuller, Bath; W. K. Oakes, Auburn.

Rhode Island: Drs. C. W. Foster, Woodfords; W. L. Cousins, Portland.

Connecticut: Drs. H. H. Brock; Geo. H. Cummings, Portland.

New York: Drs. J. S. M. Willis, Elliot; S. C. Gordon, Portland.

New Brunswick: Drs. D. A. Robinson, Bangor; J. A. Donovan, Lewiston.

Maritime Medical Association: Drs. B. B. Foster, Portland, and D. B. Myrshall, Woodfords.

The selection of orator was left to the chairman of the next board of censors, with power.

The meeting was one of the usual interest although the attendance was below that of the average year.

Twenty-four new members were added.

The plan of meeting at Bangor next year is not understood as a precedent for future action, but reasons were apparent why it was for the interest of the Association and its eastern members to make the change.

The Association finally adjourned at 10 o'clock.

AMERICAN ORTHOPEDIC ASSOCIATION,

TWELFTH ANNUAL MEETING, BOSTON, MASS., MAY 17–19, 1898.

FIRST DAY.

DR. ROBERT W. LOVETT, of Boston, delivered the

PRESIDENT'S ADDRESS.[1]

HE said that twenty-five years ago the first chair of orthopedic surgery was founded at the Bellevue Hospital Medical College, and was filled by Dr. L. A. Sayre. At the present time, the existence of such a chair was announced in the catalogues of at least forty-one of our medical schools, and instruction was given in eleven of our larger cities. The transactions of the American Orthopedic Association now constitute the modern American orthopedic literature. It was natural that at first the attention of the Association should have been directed to the treatment of the commoner deformities, and the specialty still felt the influence given it by such leaders as Sayre and Taylor, but the scarcity of study on experimental pathology was to be deplored. Thus, no important addition has been made to our knowledge of the pathology of hip disease since the appearance of Gibney's book fourteen years ago. Next to nothing was known of

[1] See Journal, May 19, 1898.

the pathology and histology of acetabular disease, and the indications for excision in hip disease are hazy, chiefly because of the inaccuracy of our pathological knowledge. The results are good in the treatment of club-foot because of the clearness of our knowledge of the symptomatology and pathology of this condition. There is great need for further and more exact knowledge of inflamed, irritated and neurasthenic joints, especially joints affected by rheumatoid arthritis and syphilis. Very little is known also of the early etiological factors of flat-foot, or of the real cause of the bony changes in rickets. The speaker made a plea for the thorough utilization of the operative material of the older surgeons, by giving an opportunity for the younger men to use it in accordance with the demands of modern scientific research. A more exact working basis, he said, founded on a more accurate pathological and etiological knowledge, would dignify and broaden orthopedic surgery.

TRAUMATISM OF THE SPINE SIMULATING POTT'S DISEASE.

DR. T. HALSTED MYERS, of New York, read a paper with this title. The paper dealt with those cases, chiefly occurring in adults, in which traumatism is followed by the symptoms or deformity commonly found in Pott's disease, yet which the subsequent history showed were not really that disease. The cervical and lumbar vertebræ are naturally the most vulnerable parts of the spine, the dorsal vertebræ being better protected and reinforced. Several cases were cited in illustration, of which the following is a good example: J. V., twenty years of age, over six feet tall, and weighing over two hundred pounds, slipped and fell backward, and as he did so felt something "give way," and experienced sensations of "pins and needles" in the feet for a short time. He was soon able to go to work again. Another injury to the same place, however, laid him up for a short time. When first seen by the speaker in September, 1889, there was a kyphosis at the ninth and tenth dorsal vertebræ, some tenderness, and slight lordosis at the twelfth dorsal and first lumbar vertebræ. He could walk only a few steps. Four months later he was put to bed with a plaster-of-Paris jacket. After three and a half years he could walk half a mile, and one and a half years after that he could walk three miles. Dr. Myers said he did not believe this man had Pott's disease, because of the good family and personal history and splendid physique. Another case was that of Mr. C., eighteen years old, who developed an abscess in the lumbar regions, which opened and discharged spiculæ of bone. Two months later, a small kyphos was noted, and a spinal assistant was applied at St. Luke's Hospital. After three years, a large sequestrum of bone was discharged, and the abscess closed. He wore a brace for six years, although he was believed to be cured two years before its removal. This man had been refused by various large life insurance companies because of a rule against taking cases of tubercular joint disease. Dr. Myers said that where the vertebræ are fractured, with little or no injury to the cord, there is local weakness, and some tenderness may be present, but not very much. On assuming the erect position, the weight of the body gradually increases the kyphosis or lordosis. The picture is then one of ordinary osteitis, and may be easily mistaken for Pott's disease, as there are then present the characteristic deformity, reflex spasm, continual pain and disability. Life insurance companies should not refuse such risks on hard-and-fast rules, but should consider each case separately on its own merits. The object of the paper was especially to call attention to the fact that there are certain cases of traumatism of the spine whose subsequent history is so short and eventful, and the result of treatment so good, that it seems hard to believe that tuberculosis is the cause of the trouble.

DR. A. B. JUDSON, of New York, said that he had seen a number of similar cases to those described in the paper. He did not feel disposed to agree with the reader of the paper, that all cases of bone injury which recover in a reasonable time are non-tubercular, any more than he was willing to say that all cases of inflammation of the lung that recover in a reasonable time are non-tubercular. It was quite common to find at autopsy evidences of an old tubercular process which had healed spontaneously, often without having given rise to symptoms indicative of the true nature of the disease. It did not seem to him at all incompatible with our present knowledge of tuberculosis to suppose that tubercular osteitis, if properly treated, might recover in a reasonably short time instead of pursuing a course extending over four or five years.

HALLUX VALGUS EXTREMUS.

DR. A. J. STEELE, of St. Louis, exhibited photographs of an extreme degree of hallux valgus. The toe was adducted to a right angle with the first metatarsal bone, and overrode the other toe. Bunions, with hypertrophy of the underlying bone, gave a marked prominence to the ball of the toe. The phalangeal base was displaced so as to articulate with the outer side of the metatarsal bone. Locomotion was labored and, at times, painful. Some months previously an inflammation, probably a cellulitis, had spread over the foot up to the ankle, and had left the foot more or less stiff. The extensor tendon of the great toe was rigid. The metatarso-phalangeal joint was exposed by a longitudinal incision over the inner and upper aspect, and the base of the proximal phalanx was divided with forceps and removed. After the division of the extensor tendon, the toe was readily brought into line, and a plaster-of-Paris dressing was then applied. The speaker said that the usual advice was to remove the head of the metatarsal bone; but this had not been done in the present instance because it had seemed to him that the sustaining and propulsive power of the foot would be impaired, as this was one of the points of the "tripod" upon which the foot rested. It was well to shave off the cartilage in order to secure more prompt and close union. The deformity was supposed to have been produced by the wearing of very short boots.

DR. F. S. COOLIDGE, of Chicago, said that he had to do with a few of these cases. Once, after excision of the head of the metatarsal bone, and in two cases in which part of the head of the metatarsal bone had been left, instead of recovery taking place within three or four weeks, there was pain lasting for four or five months. There was positively no infection in these cases. It seemed to him that by leaving the head of the bone there might result an inflammation of the joint surface. In all of his cases the proximal end of the phalanx had been left.

Dr. J. E. Goldthwait, of Boston, said that in cases which he had seen fit to operate he had removed the head of the metatarsal bone, and had never observed any unpleasant after-effects from this method of treatment. None of the cases had been kept off their feet over four weeks, and they usually began to walk around in two weeks.

Dr. Ansel G. Cook, of Hartford, said that he had operated upon three cases similar to the ones described in the paper. In all of them the head of the metatarsal bone had been extensively diseased, so that it would have been folly to leave it behind. Strangely enough, however, the phalanx was normal.

Dr. W. R. Townsend, of New York, said that in operating upon these cases it was particularly important to see that the scar is placed in such a position as not to be compressed by the boot. Theoretically, scars should not be tender, but practically they are so in many instances, and moreover faulty boots would often cause discomfort after operation, even though the scar had been placed in a protected position.

Dr. R. H. Sayre, of New York, said that he had been accustomed to operate either by an incision between the toes or by an external incision. He had removed some of the bone, even in cases where it had not been excessively diseased, on the supposition that there was an overgrowth of the head of the metatarsal bone, but since he had had an opportunity of studying some skiagraphs of these cases he had learned that the prominence of the bone was not the result of hypertrophy, but of a dislocation of the phalanx, with a marked separation of the first and second metatarsal bones, and stretching of the transverse ligament, so that the phalanx lies almost at a right angle to the metatarsal bone. It seemed to him that the division of the metatarso-phalangeal ligament would answer the same purpose as the removal of the head of the bone.

Dr. Goldthwait said that he had done a number of conservative operations along the lines suggested by the last speaker, and while the results had been fairly good as regards the position of the toe, the period of convalescence had been very much longer, and the ultimate result, as regards motion of the joint, very much less satisfactory. The shortest period of convalescence, in the cases so treated, had been six weeks. A more perfect ultimate result could be obtained by the excision treatment.

THE BOOT AS AN ORTHOPEDIC APPLIANCE.

Dr. H. P. H. Galloway, of Toronto, present by invitation, exhibited a number of different styles of shoes which he had found useful in orthopedic practice. He recommended, in constructing a flat-foot shoe, not only to build up the sole thicker on one side, but also to make the sole project. The shoe should have a straighter inner border, greater width of sole and a flatter sole than other shoes, and it was well to raise the sole inside of the shoe by means of a leather counter resembling Whitman's flat-foot plate. A club-foot shoe which he exhibited, and which is the invention of Dr. B. E. McKenzie, of Toronto, had been found very useful in preventing relapse after full correction of the deformity by operation. The last for this shoe is of such a shape that the front part is bent outward at a point corresponding to the medio-tarsal joint. The heel-counter is very firm, and an additional stiff bracing of leather, at a point corresponding to the first metatarso-phalangeal articulation, furnishes the necessary counter-pressure. A properly made cork-sole shoe, he said, should possess the following features, namely: (1) the inside line should be nearly straight; (2) it should hold the foot in an abducted position; (3) there should be plenty of width across the metatarso-phalangeal articulation; (4) the sole of the boot should be as wide as the sole of the foot; (5) the sole should be flat — not convex from side to side; the heel should be both broad and long. The fact should not be lost sight of that it is useless to wear properly constructed shoes unless the stockings are also properly made; they should at least have a separate compartment for the great toe.

OBSERVATIONS ON MORTON'S PAINFUL AFFECTION OF THE FOURTH METATARSO-PHALANGEAL ARTICULATION, AND SIMILAR AFFECTIONS OF THE METATARSAL REGION THAT MAY BE INCLUDED WITH IT UNDER THE TERM ANTERIOR METATARSALGIA.

Dr. Royal Whitman, of New York, in a paper with this title, reviewed the literature of this subject, and of the allied disorders of the anterior part of the foot. He said that in practically all of the earlier cases the pain had been referred to the fourth metatarso-phalangeal articulation, and in three of his own cases there had been a marked depression of the longitudinal arch. The pain was cramp-like, and in some way was favored by wearing a shoe. The pain was usually described as of a burning character, often intense like a toothache. Not infrequently the cramp is preceded by a feeling of something slipping or moving in the foot. At all times the affected articulation is sensitive on deep impression. Dr. Whitman rejected Morton's theory as inadequate, and expressed the opinion that weakness of a part, or of all of the anterior arch, was a predisposing cause. If the shoe compresses the foot, as a glove does the hand, the anterior arch is elevated, but if the shoe does not support the arch in this manner, or if the sole of the shoe beneath the arch is curved downward, one or more of the bones may be compressed, and result in the production of this cramp. This explains why sometimes a tight shoe is more comfortable to such persons than a wide one. The shoe is not only the exciting cause of the immediate symptoms, but is also an important predisposing cause, owing to its action in weakening the foot. The degree of rigidity of the anterior arch is easily determined by the degree of palmar flexion of the toes. Women suffer from this affection more than men, probably because of their higher heels and narrower shoes. From these considerations it was evident that the reason most of the measures recommended had been successful was that they all served to fix the arch of the foot. These patients should wear an ordinary Waukenphast shoe having a low heel and wide and thick sole, with plenty of room for the toes, and every effort should be made to give proper supports to the anterior arch. In the acute stage, the anterior arch may be fixed by the application of a plaster-of-Paris bandage. In conclusion, the speaker said that Morton's painful affection of the foot and anterior metatarsalgia, although not identical, are closely allied, and are the result of an abnormal relation due to occasional or habitual depression of the transverse arch. It might occasionally exist without obvious deformity, probably as a result of lateral pressure from overriding of the fifth metatarsal bone, which is, in turn, brought about by abnormal laxity of the ligaments.

(To be continued.)

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HAS THE TREATMENT OF DIABETES MELLITUS IMPROVED?

THE recent review of diabetes mellitus at the Massachusetts General Hospital, from 1824 to 1898, a brief abstract of which is given on page 178 of this JOURNAL, would at first glance appear to answer this question in the negative, for the statistics show no decrease in mortality during this entire period. But such a conclusion can hardly be drawn, since any marked changes which have been made in the treatment of this affection have been of very recent date. Even the latest works in English, not excepting that by Williamson, do them scant justice.

It is, perhaps, as much the change in our point of view of regarding the disease as the variations in treatment which are capable of producing better results. The statement occurs so frequently in textbooks that diabetes is incurable, that the practitioner loses all his enthusiasm the moment a patient with this disease presents himself. In despair he attempts a palliative treatment, writes out lists of articles headed "allowed," or "to be avoided," and perhaps adds a recipe for some new diabetic flour, while in giving the prognosis the patient's courage is perceptibly lowered.

In contrast to this gloomy picture is the hopeful view which is best set forth in Naunyn's treatise.[1] The keynote of this is contained in the following quotation: "That cases apparently severe at the outset, when subjected to a vigorous treatment, take a proportionately favorable course, while others running a severe course are, as a rule, those subjected late or not at all to careful treatment." Coming from so eminent an authority, this statement is of the greatest value, since it counteracts the tone of the usual textbook. Naunyn, in carrying out this idea, says further, "I consider it an unfortunate curtailment of the physician's task in the treatment of diabetes where it is said, 'the essential task of the physician is to support the invalid in an endurable condition of life for a long time.' In my opinion a broader, more definite purpose should be put into the treatment; namely, this, the strengthening of the deranged bodily function, or at least the checking of further disintegration of the same." This change of view is our first step toward an improved treatment for diabetes.

That drugs are of little value in this disease is now generally admitted. Notwithstanding this, there are few of us who have not heard from eminent sources that considerable success has been obtained from this or that remedy. Patients like the idea of taking medicine and come to the doctor for the sake of the prescription, just as they often go to church for the music. The advice as to the diet and hygiene, either of the body or soul, forms too commonly an entirely secondary consideration. But this question of drugs, at least for a host of remedies, is definitely settled for us by the Massachusetts General Hospital report above alluded to. The pancreatic preparations proved unsatisfactory. No drug, save opium, commended itself, and that in no wise as a specific. It certainly is another step forward, this relegation of the pharmacopeia in diabetes to a very minor position.

Rollo recommended an animal diet as long ago as 1797, and it would seem as if little improvement in treatment had taken place, or could be hoped for in the future along this line. But the point made by Rollo was the prominence given to an animal diet over carbohydrates. Little was said of the great class of fats, and what was said was quite as much against as for their use; for example, at the Massachusetts General Hospital, as late as the period 1840–1855, occurs a record of the following diet: "Lean meat, with a small quantity of stale, dry or toasted bread, avoiding all fatty, farinaceous and saccharine articles." That fifty years ago there was a lack of appreciation of the importance of fats can be understood, but that this idea has been allowed to persist seems incredible. That it does persist can be seen by consulting the most recent books of medicine, or by looking over the proceedings of the meetings of the British Medical Association recently convened in Montreal.

The importance of fats is seen first from the fact that they are the form of food best assimilated by the diabetic patient. Nearly all the sugar and starch given leaves the body unused, and for every 100 grammes of albumin, there is the possibility of 45 grammes of sugar appearing in the urine, whereas from fat, little, if any, sugar is formed. But this is not all, and herein lies another great advantage in fats. Each gramme of fat is capable of furnishing nine calories on being oxidized by the natural processes of the body metabolism, whereas a gramme of proteid matter yields but four calories, even allowing that none of it is converted into sugar. These are facts, and on these facts a rational treatment of diabetes must rest.

In the light of all this, the books still continue to recommend or countenance skim milk and buttermilk either as a prominent constituent of the diet or as worthy of trial. The difference between the amount of sugar in ordinary milk and these by-products is unessential, but the difference in fat is so great that it

[1] Der Diabetes Mellitus, Naunyn, Wien., 1898, p. 357.

amounts to more than one-half of the total quantity of nourishment therein contained. In every litre of good milk, the diabetic patient receives some 300 calories more nourishment (and that of the quality best suited to his needs) than he does in skim milk.

Following the remarks on skim milk in the text-books comes the section on diabetic breads, — that pitfall over which few pass in safety. Over and over again these have been exposed here in Boston many years ago, and again this year. Need we wait until the millenium before it is recognized that a small known quantity of ordinary bread is better than an unlimited amount of bread nearly as rich, or even richer, in carbohydrates?

The commonly accepted mode of treatment of diabetics has been, and still is, of a negative character. This is a much more serious charge against it than to say that skim milk and diabetic breads are used. Article after article is cut off from the patient's diet, and even what is left him, he is only "allowed," until finally he comes to think he eats at all only by sufferance. The secret of the successful dietetic treatment of diabetes lies entirely in the opposite direction. The diet is positive. It is not a question of *how little sugar*, but rather *how much fat*. It is not so much the withholding of articles of food as it is the prescribing of those best adapted to the patient's condition. Von Noorden gives, to form a basis of the diet, what he calls his "Eisernen Bestand," which consists of 60 grammes butter, 2 eggs, 10 grammes olive oil, 30 grammes fat cheese, 1 litre milk and 30 grammes alcohol. This quantity of food can be taken daily, is sure of assimilation, and furnishes the patient some 1,600 calories, or nearly two-thirds of all that he needs. For the remaining amount, there can be considerable latitude admitting of variety.

That one may rightly prescribe and the other follow the directions given, both doctor and patient must know the amount of food taken, and have a working knowledge of its three constituents. This can only be obtained on the doctor's part by the study of first principles. This does not mean theoretical, but practical study. He must know how much butter can be taken at a meal, how much cream can be mixed with the coffee, how much oil can be used in salads, etc. Only by personally weighing and measuring the kind of food his patient is to eat can he rightly advise him. Then, if it is found that the sugar continues to be excreted, the cause can be located, and a more suitable form of carbohydrates given, or the total amount can be further restricted. Really an interested, intelligent cook is of more value to most diabetics than a trained nurse. A Denver doctor recently said of consumptives, that if they wished to get cured of phthisis, they must make a business of it. In diabetes this applies to doctor and patient alike. Between the two a partnership must be formed, and with a more cheerful way of regarding the disease at the outset, a better appreciation of the value of fats and a positive diet list, the results will show that there is even in diabetes an improvement in our treatment.

THE VACCINATION BILL IN ENGLAND.

After much discussion on both sides of the question, the decision has finally been reached in England that vaccination shall no longer be compulsory. As we know, from time to time, dissenters are sure to arise in any community, who bring forth many more or less specious arguments directed against an institution which has been generally accepted by the thinking portion of the people. For many years there have been certain malcontents who have vigorously maintained that vaccination, enforced by law, was a distinct infringement of personal liberty, and that its practice did not, as its advocates maintained, check the spread of the disease small-pox. These anti-vaccinationists have, however, usually been distinctly in the minority, and their influence has not been seriously felt. In England, perhaps more than in other countries, such attacks against recognised methods of studying or combating disease have gained a foothold to a somewhat remarkable degree. We know, for example, how threatening to the prosecution of research in certain lines the anti-vivisection movement has been. Now comes so determined a stand against compulsory vaccination that the bill has been defeated, and England, so far as legal enactment is concerned, is once more exposed to a possible danger of the gravest sort.

The *Lancet*, writing on the matter, says: "The object aimed at by the State in legislating on vaccination should be to secure the benefits of this safeguard to the greatest possible number of persons. This can be done with varying degrees of success by one of three courses: (1) universal compulsion under penalties; (2) compulsion limited in extent by mitigation and restriction in the number of penalties; or (3) optional vaccination."

Of these methods, the first has succeeded admirably in Germany, but in England its success has been growing continually less, and has finally reached a pass when it is no longer possible. The *Lancet* is inclined to blame the physicians themselves, on the ground that they have condoned laxity in the performance of vaccination, and have not striven to show its advantages and diminish its risks. The consequence of this has been that parents, with small-pox only as a distant possibility, have preferred to evade the law, rather than to expose their children to a supposed immediate danger.

It was hoped that the second alternative would be adopted by the government, but even this, with its concessions, was set aside to give place to the so-called "conscience clause," which permits parents, who have reasonable objection to vaccination, to allow their children to go unvaccinated. Evidently vaccination becomes optional through this subterfuge.

The *Lancet* comments editorially upon the situation as follows: "This, which has been variously characterized as a piece of political expediency or as yielding to the clamor of a clique, may nevertheless prove to be the most statesmanlike course, though no medical man can view with equanimity the possibility of an

outbreak consequent upon a liberal use by the public of the right to conscientious objection. However, if the plan were to reduce the number of recalcitrants it would not attain the objects aimed at unless it were accompanied by provisions for a similar enforcement of revaccination of adolescents. Therefore, we shall not regret the withdrawal of this bill."

THE MEDICAL DEPARTMENT OF THE ARMY AGAIN.

The criticism of the medical department of the army in which certain medical as well as lay journals continue, as we regret to say, to indulge, calls for further comment.

How in the face of the reports, such as that of Captain Munson, which we quoted last week, a medical journal can continue to hold the surgeon-general responsible for matters of commissariat and transportation not coming under his control, we fail to see.

As an instance of the difficulties which the climate added to the evils of hurried preparations, comes the letter of Lieutenant-Colonel Pope, who was surgeon in charge at Santiago till July 23d, stating that at the time of the sailing of the *Seneca* and *Concho* he was ill with sunstroke, and therefore unequal to the duties and responsibilities which devolved upon him. As is well known the condition of the troops upon these transports has been the chief cause for criticism directed against the surgeon-general's department.

While we would yield to no one in resentment at any mismanagement which may have caused unnecessary suffering on the part of our soldiers, we cannot but think that in the light of the phenomenal success of the campaign of our army at Santiago, accomplished as it was in the face of extraordinary difficulties, and under conditions which rendered the utmost haste imperative, we would be better employed in congratulating our medical department on the small mortality made possible by its labors, than in swelling the wave of newspaper criticism of its surprisingly few mistakes.

MEDICAL NOTES.

Two American Physicians Honored. — The University of Edinburgh has conferred its honorary L. L. D. degree on several of those who attended the recent meeting of the British Medical Association, including Prof. H. P. Bowditch, of Harvard University, and Prof. Wm. Osler, of Johns Hopkins University.

Professor Virchow in London. — Professor Virchow is announced to deliver the introductory lecture to students at the opening of the Autumn Medical Session at the Charing Cross Hospital. The great pathologist has chosen for his subject the simple but comprehensive one of "Recent Advances in Science and their bearing on Medicine and Surgery," and he will speak in English.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, August 17, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 22, scarlet fever 11, measles 12, typhoid fever 10.

NEW YORK.

Dr. Feeny Succeeds Dr. Hubbard. — Dr. John I. Feeny, a brother of Dr. M. B. Feeny, Chief of the First Division of the Health Department, has been appointed Sanitary Superintendent of the Borough of Richmond (Staten Island) to succeed Dr. George C. Hubbard, deceased.

Death of a Nurse in the Army Hospital Service. — The death of Miss Dorothy Phinney, the first woman to lose her life in the hospital service during the war, is reported. Before she entered the service she was a nurse in the Kings County Hospital, Brooklyn, and her many admirable qualities make her loss deeply regretted. It is probable that a suitable memorial in her honor will be gotten up by her former associates.

An Island Offered to the Government. — James A. Jones, of Deep River, Long Island, has offered to the Government the free use for hospital purposes of Hick's Island, near Montauk Point. This island, which is owned by Mr. Jones, is about thirty acres in area, and on it are several buildings, with wharves, engines, boilers, pumps, etc. It is only two miles from the Long Island Railroad, and four miles west of Fort Pond Bay, where the military camp is located. It is situated at the entrance to Napheague Bay, which affords ample harbor facilities for vessels of moderately heavy draught.

Frankfort Sausages and Hydrophobia. — A case of highly scientific interest is reported from Coney Island, where a man is reputed to have contracted hydrophobia from eating *Frankfurter sausages*. If this curious story should prove to be correct it would seem to suggest to those visiting that idyllic resort the double warning, not only to refrain from eating the Frankfurters but to leave their pet dogs at home.

Death at the Age of One Hundred and Seventeen Years. — Mrs. Margaret Fallon, believed to have been the oldest person in America, died at King's Ferry, on Cayuga Lake, near Ithaca, on August 8th, at the age of one hundred and seventeen years. It has been found from the records that she was born in Lusfuth Parish, King's County, Ireland, in 1781. She came to this country about eighty years ago, and has been a widow for over fifty years. She is survived by four sons and five daughters, the oldest daughter being eighty and the oldest son seventy-five. During the Civil War two of her sons enlisted, one in the Union and one in the Confederate Army. The former died in Libby Prison, while the latter survived the war.

Miscellany.

DIABETES MELLITUS AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1824 TO 1898.

This is the subject of an important historical communication made by Drs. Fitz and Joslin, of Boston, at the recent meeting of the American Medical Association, and published in the *Journal* of the Society for July 23. In the general rush and hurry of medical work we are perhaps too apt to ignore the distant past in our efforts to do full justice to the present. The historical spirit is, in general, poorly developed among medical men. A painstaking piece of work, therefore, of the character of that before us deserves and demands special mention.

The main object of the investigation was to seek evidence in cases which had occurred at the Massachusetts Hospital, of the pancreatic origin of the disease. Other facts of interest were, however, adduced in the study of the disease, which have a decided historic interest. During the seventy-four years under consideration 172 cases were treated in the medical wards of the hospital. In comparing the number of entries by years it was found that within the past thirteen years as many cases of diabetes were admitted to the hospital as in the previous sixty-one years, and the per cent. in the past thirteen years in proportion to the total number of hospital entries has increased fourfold over that of the first fifteen years. The reason for this remarkable increase is given as a wholesome tendency on the part of diabetic patients to put themselves under careful medical supervision. No doubt this is true of other cases as well, and is a gratifying indication of the passing of a prejudice against hospitals, which even now we occasionally see in certain classes of the community. The statistics showed that the disease is predominantly one of the middle third of life, although certain cases were observed in elderly persons and also in the very young. Of the whole number studied, 74 per cent. were males. Not much of importance was learned as to the effect of hereditary predisposition or trauma in leading to the symptoms. Post-mortem examinations were made in 15 of the 47 fatal cases, with the failure to find characteristic lesions, as was, of course, to be expected. The pancreas was examined in certain cases, but its lesions, when found, threw no light on the nature of the underlying cause.

In the earliest records especial importance was attached to the measurements of the quantity of urine passed as compared with the quantity of liquids ingested, since formerly it was believed that patients excreted more urine than they drank liquid. The eradication of this idea has been exceedingly slow. Up to 1851, it is interesting to note that the presence of sugar in urine was determined by taste. In this connection the writers say:

"The physician in charge sometimes called upon the house-physician to apply this test, although a positive statemen to this effect is found only in 1844 and again in 1845. It is probable, however, that the patient was occasionally called upon to use this method, for in 1831 the statement appears, 'on tasting, as directed to do by the physician . . . it was found sweet.' This patient is credited also with the ability to make quantitative determinations in this way, for 'he observed, however, that if he relapsed at any time, even in a very slight degree, from a rigid animal diet, the urine was increased correspondingly in sweetness and quantity.' In another instance it is stated that the urine is 'less sweet after eggs.' In general the patient at the time of entrance was able to make such positive statements as made apparent the condition of the urine. One 'reports urine sometimes natural, at others sweet.' It had the 'sweetest taste,' or 'was sweetest to the taste.' The urine had a 'saccharine smell and taste,' or presented a 'sugary appearance on the shirt,' or the 'urine upon cloth leaves sticky and sparkling deposit.' The intelligence of the lower animals sometimes aided in the diagnosis, for of one patient's urine it is stated that 'flies gathered upon places moistened by it.' Such everyday methods of diagnosis are still in use, for it is but recently that an office patient stated of her diabetic mother that her 'clothes would rattle like starch, so sugary was the water, like brine on the floor.'"

These crude methods were supplemented very early by others, such as evaporation, and in 1841 Trommer's test was introduced. Moore's test, although known before, was apparently first used in the hospital in 1851. The breath of diabetic patients first attracted attention in 1835. The paper goes on to discuss various minor symptoms and offers many statistics of interest and value.

As may be supposed, the treatment has varied within wide limits. During the first fifteen years of the period under discussion it consisted in general of opium, either alone or with camphor and aloes. Cathartics and enemata were vigorously used. Quinine, dilute nitric acid, blisters and cupping were used during the early period. From 1840 to 1855, a time of high mortality, no fatty, farinaceous, and saccharine articles were allowed. For drink, cold water and weak tea. Opium was used, but less freely than heretofore; cathartics were continued and many other drugs, which could have done nothing toward alleviating the condition. During this period the use of yeast was tried by McGregor, who stated that it made the patients feel as if they were "on the eve of being blown up." From 1855 to 1870, special attention was paid to the selection of a suitable bread, and in general, somewhat more attention was given the diet. The following fifteen years saw a return to drugs which were given in great variety and profusion. Since 1885, Soya bean bread has been added to the dietary. Opium is still used rather freely. On the whole the treatment has become more rational, but with no marked change in the mortality. As the writers in conclusion remark:

"The average mortality of saccharine diabetes has not changed materially, for it was the same in the past thirteen years as in the previous sixty-one years. The dietetic restrictions have undergone no essential alteration in this time. Opium is the only drug which has been persistently used in the treatment throughout this entire period."

METEOROLOGICAL RECORD

For the week ending August 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	Weather.* 8.00 A. M.	Weather.* 8.00 P. M.	Rainfall in inches.
S....31	29.96	74	79	68	78	83	80	N.	N.E.	3	13	F.	O.	
M....1	29.98	67	64	65	89	96	94	N.E.	E.	6	6	C.	C.	
T....2	30.00	77	87	67	88	72	80	W.	N.E.	3	4	C.	C.	
W...3	29.94	74	88	62	79	82	76	N.E.	S.	13	12	C.	C.	
T....4	29.94	82	90	70	86	68	84	S.W.	S.	10	13	C.	C.	.31
F....5	29.92	72	78	67	92	94	91	S.	W.	13	8	R.	C.	.70
S....6	29.98	74	83	64	93	83	92	W.	S.W.	13	13	F.	C.	

* C., cloudy; C., clear; F., fair; O., fog; H., hazy; R., smoky; R., rain; T., thunder-storm; W., wind. † In Boston trees or vessels. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 6, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1579	851	27.84	8.70	22.80	.90	.84
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	—	—	—	—	—	—	—
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	224	101	11.25	6.25	2.25	2.25	3.15
Boston	517,732	280	168	35.18	4.40	32.40	.72	.72
Cincinnati	405,000	101	—	9.90	17.82	7.92	.99	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	98	54	36.60	5.20	27.84	4.16	1.04
Washington	277,000	113	45	20.40	10.20	22.10	3.40	.85
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	77	41	41.28	15.48	24.84	3.87	—
Worcester	105,650	54	33	42.55	1.85	35.16	—	—
Fall River	95,919	—	—	—	—	—	—	—
Nashville	87,754	30	10	3.33	26.66	3.33	—	—
Lowell	87,193	56	41	46.76	7.04	44.60	—	1.76
Cambridge	86,812	44	29	45.40	9.08	29.05	—	2.27
Lynn	85,320	15	9	46.62	6.66	20.00	—	—
Charleston	65,165	33	13	39.39	6.06	18.18	21.21	—
New Bedford	62,416	41	27	61.00	4.88	53.68	2.44	2.44
Somerville	57,977	—	—	—	—	—	—	—
Lawrence	55,510	32	24	68.73	—	62.50	—	—
Springfield	54,730	25	12	44.00	4.00	36.00	—	—
Holyoke	42,364	28	15	35.71	14.28	32.13	—	—
Salem	36,062	9	2	22.22	11.11	22.22	—	—
Brockton	35,853	8	2	—	—	—	—	—
Malden	32,894	9	4	77.77	11.11	44.44	—	—
Chelsea	32,742	—	—	—	—	—	—	—
Haverhill	31,406	16	9	43.75	6.25	25.00	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	25,900	—	—	—	—	—	—	—
Fitchburg	28,392	15	9	33.33	—	33.33	—	—
Taunton	27,812	9	3	22.22	—	22.22	—	—
Quincy	22,562	5	2	40.00	—	40.00	—	—
Pittsfield	21,791	—	—	—	—	—	—	—
Waltham	21,812	2	0	—	50.00	—	—	—
Everett	21,573	—	—	—	—	—	—	—
North Adams	19,135	5	2	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,368	7	5	28.56	28.56	28.56	—	—
Brookline	16,164	1	0	—	—	—	—	—
Medford	15,832	6	6	66.66	—	66.66	—	—

Deaths reported 2,950: under five years of age 1,525; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 895, consumption 256, acute lung diseases 135, diarrheal diseases 706, typhoid fever 43, diphtheria and croup 31, whooping-cough 31, cerebro-spinal meningitis 27, measles 16, scarlet fever 7, erysipelas 4.

From whooping-cough New York 22, Pittsburg 4, Providence and Haverhill 3 each, Cambridge 2, Boston, Baltimore, Cincinnati, Worcester and New Bedford 1 each. From cerebro-spinal meningitis New York 11, Baltimore 4, Washington and Worcester 3 each, Cambridge 2, Boston, Lynn, Springfield and Holyoke 1 each. From measles New York 11, Washington 2, Boston, Baltimore and Pittsburgh 1 each. From scarlet fever New York 6, Washington, 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending July 30th, the death-rate was 17.2. Deaths reported 3,709; acute diseases of the respiratory organs (London) 173, diarrhœa 356, measles 62, whooping-cough 61, diphtheria 47, fever 29, scarlet fever 17.

The death-rates ranged from 9.4 in Cardiff to 23.7 in Salford; Birmingham 19.5, Bradford 13.6, Bristol 10.7, Gateshead 15.1, Hull 17.2, Leeds 16.6, Liverpool 23.0, London 16.8, Manchester 19.0, Newcastle-on-Tyne 17.8, Nottingham 14.4, Portsmouth 21.8, Sheffield 21.9, Sunderland 19.6, West Ham 16.4.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING AUGUST 11, 1898.

PURVIANCE, GEORGE, surgeon. To rejoin station at Baltimore, Md. August 2, 1898.

GODFREY, JOHN, surgeon. To rejoin station at Detroit, Mich. August 2, 1898.

CARTER, H. R., surgeon. To report at Bureau for special temporary duty. July 29, 1898. To proceed to Galveston, Texas, for special temporary duty. July 30, 1898. To proceed to New Orleans, La., preparatory to assignment to duty at Santiago, Cuba. August 3, 1898. To proceed to Santiago, Cuba, for special duty. August 6, 1898.

WHEELER, W. A., surgeon. Upon the return of Surgeon D. A. Carmichael to rejoin station at Cincinnati, Ohio. August 2, 1898.

CARMICHAEL, D. A., surgeon. To rejoin station at Cleveland, Ohio. August 2, 1898. Upon being relieved from duty at Cleveland, Ohio, to proceed to Honolulu, Hawaii, for special duty. August 11, 1898.

WARDIN, EUGENE, passed assistant surgeon. To proceed to Santiago, Cuba, for special duty. August 8, 1898.

WHITE, J. H., passed assistant surgeon. Granted leave of absence for one month from August 1, 1898, on account of sickness. July 30, 1898.

MAGRUDER, G. M., passed assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 8, 1898.

KINYOUN, J. J., passed assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 8, 1898.

GUITERAS, G. M., passed assistant surgeon. To assume command of Boca Chica Detention Camp, Key West, Fla., in addition to other duties. August 6, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Cape Fear Quarantine Station, Southport, N. C., and assume command of Service. August 2, 1898.

THOMAS, A. R., assistant surgeon. To proceed to Fort Monroe, Va., and report for duty on U. S. transport "Obdam." August 2, 1898.

WICKES, H. W., assistant surgeon. Granted leave of absence for fifteen days from August 4, 1898. July 30, 1898.

TABB, S. K., assistant surgeon. To proceed to Louisville, Ky., and report for temporary duty and assignment to quarters. July 30, 1898. To rejoin station at Savannah, Ga. August 6, 1898. To proceed to Montauk Point, L. I., for special temporary duty. August 11, 1898.

HASTINGS, HILL, assistant surgeon. Relieved from duty as representative of the Service at the trans-Mississippi Exposition, Omaha, Neb., and directed to report at Washington, D. C., for instructions. August 2, 1898. To proceed to Montauk Point, N. Y., for special temporary duty. August 8, 1898.

IAVINDER, C. H., assistant surgeon. To proceed to Newport News, Va., and report for duty on U. S. Transport "Manitoba," August 2, 1898.

GRUBBS, S. B., assistant surgeon. To proceed to Brooklyn, N. Y., and report for duty on U. S. Transport "Chester." August 2, 1898.

FORTER, M. H., assistant surgeon. To proceed to Egmont Key Detention Camp, Port Tampa, Fla., for special temporary duty. August 1, 1898.

LUMSDEN, L. L., assistant surgeon. To proceed to Reedy Island Quarantine, Port Penn, Del., for duty and assignment to quarters. August 4, 1898.

ANDERSON, J. F., assistant surgeon. To proceed to Egmont Key Detention Camp, Port Tampa, Fla., for special temporary duty. August 9, 1898.

WHITE, MARK J., assistant surgeon. To report at Immigration Depot, New York, N. Y., for temporary duty. August 2, 1898. To proceed to Montauk Point, N. Y., for special temporary duty. August 11, 1898.

FRICKE, L. D., assistant surgeon. To report at Detroit, Mich., for duty and assignment to quarters. August 3, 1898.

HEISER, V. G., assistant surgeon. To report at Boston, Mass., for duty and assignment to quarters. August 4, 1898.

PROMOTIONS.

Passed assistant surgeons to be surgeons, August 10, 1898: PECKHAM, CYRUS T.; GLENNAN, ARTHUR H.; WARDIN, EUGENE; BROOKS, STEPHEN D.; WHITE, JOSEPH H.

APPOINTMENTS.

To be assistant surgeons,

WHITE, MARK JOHNSTON; FRICKE, LUNSFORD DICKSON., July 29, 1898. HEISER, VICTOR GEORGE; MCADAM, WILLIAM RALPH; GWYN, MATTHEW KEMP; HOBBY, WILLIAM COTT, August 3, 1898.

SOCIETY NOTICE.

THE AMERICAN MICROSCOPICAL SOCIETY.—The 21st annual meeting of the American Microscopical Society will be held in Syracuse, N. Y., August 30, 31, and September 1, 1898. The sessions will be held in the building of the Syracuse University Medical College.

All interested persons are invited to be present, join the Society and read and discuss papers or demonstrate apparatus and methods. For particulars as to membership, etc., letters may be addressed to Prof. S. H. Gage, Ithaca, N. Y., or Dr. A. C. Mercer, Syracuse, N. Y.

JOHN VAN DUYN, A. CLIFFORD MERCER, *Com.*

RECENT DEATH.

HARLOW GAMWELL, M.D., M.M.S.S., died in Westfield, August 11, 1898, aged sixty-three years.

Lecture.

TALKS ON THE HISTORY OF MEDICINE.[1]

No. I.— PREPATORY: TO THE RENASCENCE.

BY DAVID HUNT, M.D., BOSTON.

WITHOUT attempting to indicate, even, the mythical heroes of medicine, whose names Le Clerc and Sprengel have made so well known, we shall, in this first talk, endeavor simply to mark out a common ground upon which we can meet for a more detailed study of some features of the period of the Renascence. Naturally we recall the name of Hippocrates, the founder of our art; he was to medicine as Socrates to philosophy; in both, at nearly the same epoch, we find character playing a part as important as that performed by intellect. Their honesty and unselfishness made them nobly dissatisfied with conditions obtaining in their respective fields of endeavor. The questionings of Socrates were intended to prick the rhetorical bubbles of the sophists, a class, accepting their justification by Grote, which had no great purpose in their disputations, no object such as made the name of Socrates beloved of mankind.

Hippocrates in the same spirit rejected whatever of esoteric nature adhered to medicine; he is celebrated not as the priest of Æsculapius, not as the founder of a new philosophy, but as the founder of the art of medicine. This he accomplished by straightforward observant practice; of course he partook of the general heritage of ideas. Thales had left his ideas concerning the importance of water as the original substance for the creative spirit; Pythagoras had developed his mystical notions of numbers and metempsychosis; Empedocles had described the world animated by passions, moved by love and hate; Anaxagoras had conceived of a creation of which his like and unlike particles were units; and Democritus, excelling in genius, had evolved an atomic theory with stern necessity as a prime mover. Water, air, fire and earth were established for Hippocrates as the four elements, and an abstract first, original creative power, a portion of whose spirit served each individual as a motive power, was also a commonly received doctrine. To these conceptions as such Hippocrates added but little; he was scantily supplied with anatomical knowledge, his physiology was almost equally limited. He conceived of an innate warmth proportioned to the activity of the nutritive process, of a pneuma which circulated through all the vessels, in the free or retarded circulation of which he saw the principal characteristics of health and disease, of a sort of excitability and of sympathy between the different parts. He had but little knowledge of generation; to him the uterus was bicornate; the body was composed of the four elements. They were warm and cold, dry and moist and their properties corresponded with the four principal fluids, the blood, mucus, the yellow and black bile. Health was a normal mixture of these elements properly tempered in their properties and an unobstructed circulation of the pneuma. His fame then rests almost wholly upon his descriptions of disease; here there is no suspicion of barrenness; he was the masterful artist; he did not follow conventional lines. Where reasoning, with the elements at hand, was impossible, these qualities, the cream of all his character, restrained him from attempting to learn nature from philosophy and guided him to Nature herself, the immortal teacher of mankind.

The simple art of Hippocrates was soon corrupted; others did rush in where he had feared to tread; it was inevitable, as men were constituted, that some founder of sect or school, mistaking green fruit for ripe, should attempt, in proper person or by means of zealous disciples, a premature "science" of medicine. Two systems of thought have had such far-reaching effects upon the actions and reactions constituting the evolution of the science and art of medicine that it is needful to give them briefly separate notice.

Plato's conception of science was such that he thought our chief aim should be the searching for the immaterial ideas or types of things; these ideas were, to him, eternal, original conceptions of a creative power; they were known to our immaterial part before birth, before the connection of soul and body, hence the true end of investigation was rather the awakening and recalling these "ideas" and by so doing realizing the truth in coming to a knowledge of the divine conceptions. This would furnish a "reality" in contrast with the unreality and discordance which our perceptions of natural objects furnish us. To Plato our souls and the souls of worldly bodies were emanations from the world soul—a part of God; our bodies are warm as they are vital, and the earth has this same vital warmth; our bodies are composed of the four elements, so is the world, and as our body has a soul so the world has; further, since the head is round, like the world, it is the natural seat of the soul which rules the whole body, but a second, lower, mortal soul has its seat in the breast and abdomen. As to the body of man, its essential characteristic is a basis of marrow with which the elements, united in various degrees, compose the parts; thus bone is marrow and earth. Plato is the noblest type of idealism which the most glorious period of human thought has produced; it has been said that anything can be found in his various writings not excepting innumerable contradictions; for us it is sufficient to know that according to his main ideas the chief rôle of scientific investigation is the cultivation and purifying of our imaginative faculties.

Aristotle looked more to nature; he was not unmindful of the demand for generalizations; he knew that we are continually deceived by appearances, but with greater power of observation and less tendency to poetic introspection he endeavored to correct the false interpretations of the senses and continually sharpened the observing faculties by exercising them. With these tendencies he naturally employed inductive methods, long before Bacon made the world conscious of their importance. To Aristotle the reality, the truth, is that embodied in the individual object; this was composed of an undetermined element which was the material and of a determined element or form; the purest essence of being is intellect, pure, abstract thought; this intellect is active in the prime mover, which is susceptible of becoming all things in thinking; the passive intellect which is acted upon renders all things intelligible, but that which acts is superior to that which is acted upon and this inferiority is shown by its perishable nature; the active intellect is impersonal, separate from the individual but participated in by individuals. It is agreed that his were the highest conceptions of Greek philosophy, but this "meta-

[1] A course of four lectures delivered by invitation before the Harvard Medical Alumni Association, February, 1898.

physical Newtonism," as Renan calls it, contained many elements of the thoughts of his predecessors and is not more noticeable for us than the mass of observations which he accumulated. The "Peri-Zöon" is wonderful reading to-day and in embryology it was nearly two thousand years before the world attained the level which he established.

The time of Grecian glory was not to be long continued. The rise of Macedon, the conquests of Alexander, the division of the East among his generals at his death, the rise of Egypt under his successors led to the founding of the great library and school at Alexandria and its early annals are marked by the names of Erasistratus and Herophilus, physician and anatomist, worthy of ranking with Euclid, Archimedes and Hipparchus. But the expectations excited by such names were not to be realized; the empirics could furnish only too many grounds against an attempt to furnish scientific foundations for our art; the abuses which had been experienced in the formations of the various sects and schools upon so many out-worn dogmas appeared to be fatal to all rationalism. In addition, the success of the attempt to form a new religion by the introduction of the worship of Serapis and Isis were soon followed by the formation of a metaphysical system composed of fragments of all the dreams of the East, in the cultivation of which all sound methods of observation and reasoning decayed until they seemed only to enrich the soil for the growth of that mystical system destined to become the characteristic of the Alexandrian school.

As time passed, Rome exercised in the Punic Wars, subjugated Greece and entered upon the career of Eastern conquest, ending at Actium with Egypt a Roman province; as a consequence her intellectual life, mostly imitative, and her religious life, Machiavelian at the best, were degraded by every kind of Eastern superstition flowing in upon her through the channels established by her armies, even as in a more peaceful way they inundated Alexandria. Enough of medical knowledge had accumulated to make possible the era of the encyclopedists, Celsus, Pliny and Dioscorides. Aretæus is about the only great medical man between their era and the time of Galen, to whom he furnished much of anatomical observation; he was great enough to rise above the sects in their attempts to confine medical study to one-sided views of the elements as formulated by Hippocrates. Galen was more philosopher than practitioner, and this probably is the key to most of his unpopularity at Rome; he was naturally imbued in his native school of Pergamos with the doctrines of Aristotle; but in his work at Alexandria, where he made his famous anatomical studies, he was subjected to a certain extent to the Platonism in the ascendant there; he vaccilated between the systems but leaned eventually towards materialistic views; he could not accept the idea of a "soul." At one time he speaks of respiration as maintaining innate warmth, at another as refreshing and restoring the animal spirits located in the brain. He denied the opinion of Erasistratus that the arteries contained air and established the fact that they contained blood, but as is well known he described a permanent communication between the ventricles. He used well the accumulated knowledge of his time and he added considerably to it, but he was not much in advance of the spirit of his age. He was the last of the ancient anatomists, but he was fully as prominent for his dogmas; his comments upon the writings of Archigenes upon the pulse, his doctrines of the temperaments (the sanguine, cold and warm; the phlegmatic, moist and cold; the choleric, dry and warm; the melancholic, dry and cold) and his dogma of "contraries" which give origin to the "allopathy" of those who love to think and talk dogma, did as much or more than anything else to pad what might be called medical scholasticism. Perhaps the worst to be said of him is that he assisted in preserving the health of Commodus, and the best, that he maintains much the same relative position in medicine as that occupied by Marcus Aurelius in philosophy.

Alexandria at this time had forgotten its Grecian culture: Jewish, Persian, Egyptian and other superstitions, mingled with fragments of the doctrines of Pythagoras, Plato and Aristotle constituted a confusion from which arose such prophets as Apollonius of Tyana and such teachers as Philo, who a little before our era had begun the formation of the system prevalent in the school. All the efforts of the ancients had resulted in leaving the curiosity of man unsatisfied; human reason, human science had failed; faith then must be tried, and the knowledge of the universe must be sought as a gift from God; piety must conciliate the supreme power into giving that which man was incapable of earning; thus originated the Neoplatonic doctrines at Alexandria, for centuries the centre of medical culture. Later there were new developments of mysticism, the Cabala with its mystic meanings of words and letters; Oriental fastings and tortures calculated to stimulate the ecstacies in which nearer approaches to the divine wisdom were imagined; cures by the laying on of hands, by the use of holy ointments, by the sign of the cross and by holy relics, — all these characterized full-fledged Neoplatonism. Plotinus, its greatest exponent, would have nothing to do with medicine or with doctors; he was as much opposed to baths and to animal food, in short a confirmed ascetic. It is needless to dwell upon the scantiness of medical records in such an environment; one important contribution to future thought resulted. Influenced partly, at least, by Persian ideas, a sort of formless world was conceived out of which things in the process of becoming took a nature of good as a part of God or of evil, in so far as they were not of Him, or negative. The growth of this conception during the Middle Ages influenced the Christian philosophers, as for instance, Saint Augustine, to whom the origin of evil, the boundaries of the kingdoms of good and evil, the nature and rank of the inhabitants, etc., are leading questions.

In Rome, in the mean while, astrology, alchemy, the transmutation of metals and all varieties of arts had kept pace with the Alexandrian movement.

In the fourth century Oribasius forms a medical and historical landmark of considerable importance; he preserved many fragments of ancient medical literature. Galen, Dioscorides, Erasistratus furnished him, apparently, with as many ideas as his own extensive experience in the campaigns of Julian, reaching as they did from Gaul to Persia. He shared with the great emperor his love for classical antiquity and probably witnessed the final division of the Roman Empire. Nemesius, of Emesa, was of this time; his name has been made more familiar to us by his extreme development of certain Neoplatonic imaginings, resembling, in a shadowy way, the doctrine of evolution as worked

out in our time by laborious research: it is a good sample of the stuff of which Dutens and some of his successors have written of the "origin of discoveries attributed to the moderns," and of "lost arts"; also of much of the material that enters into the various theosophies. As these imaginings have been favorite playthings for the mystics of all ages it is not absolutely correct, perhaps, to speak of them as valueless.

In the fifth century the school of the Nestorians at Edessa contributed a number of interesting facts to the medical annalist: here were educated Mesue, the elder, Serapion and many famous physicians, here perhaps his first hospital was founded. There was a noticeable freedom from religious restrictions while the Nestorians and Jews were unconsciously beginning the culture of the Arabians; ancient fragments of all kinds, pagan, Christian, Jewish and Egyptian, combined to form a soil for coming Mohammedanism.

Alexander Trallianus, of Lydia, is perhaps the most prominent medical figure discernible in the deep gloom of the sixth century; he was independent and original and is famous in our literature and to a certain extent outside it, from his elaboration of Galen's ideas to a conception of vital force. Aëtius, pupil of Oribasius, but a Christian of Oriental and mystic type, was his contemporary; his name may fix for us the epoch of the beginning of the development of Neoplatonism into pantheism; a movement against which Justinian, exponent of all that is hateful in orthodoxy, issued his decrees. Justinian suppressed the failing school at Athens, thus formally severing a tie, nearly worn out, which bound scholarship to the ancients for nearly a thousand years; by taking away the salaries of the professors at Alexandria he aided its downward movement. Meantime the seed sown by the holy Antony in Egypt in the fourth century was bearing fruit, and we read under the rule of this Eastern bigot of the resort of the studious to the monasteries; it is the gloomiest century of the Middle Ages and among all the convulsions of nature which terrorized, and plagues which for more than fifty years wasted mankind, as is fitting, we find the first description of small-pox.

In the West the Roman Empire was in ruins; the hordes of barbarians were mingling their superstitions with those of their victims; the history of the iconoclasts, the strange result of their rising, the loss of Italy, the revolt of the popes, their successful appeal to France, the founding of the Carlovingian dynasty, — of these the immortal Gibbon has made an English story for other dustmen than Mr. Boffin.

In the East, Mohammedan orthodoxy, early in the seventh century, finished the ruin of Alexandria which the Christian orthodoxy had begun: out of this epoch came the thought of Theophilus that brain and spinal cord were really formative influences in shaping the skull and the vertebra; probably the subject is not yet exhausted.

We can only indicate the Mohammedan conquest of the north of Africa, the south of Italy, Spain and Byzantium itself; the medical capital of the conquerors consisted of all that remained of Greek culture which was passed over to them in the pandects of Ahrun, translated into Arabic by an Alexandrian Jew. It is the age, for us, of Paul of Ægina, whose works, translated and supplied with comments by Francis Adams, furnish one of the most valuable of English sources as to the details of ancient medicine — though at the same time this very work is a demonstration of a reason why medical history is at so low an ebb in English schools. The most prominent claim of the translator for a consideration of the work is its importance as a direct aid in daily practice; of course, such a claim was soon proven to be almost baseless; the art of fifty years ago even, found but little to copy in its practice from the records of ancient medicine; all that experience had taught us to preserve was incorporated in the art; what it had taught us to drop consisted mostly of outworn humbugs. As well *copy* the ancient artists in their drawing and coloring; we *study* the ancient artists and find our reward in better conceptions of the complexities, of the tendencies of art in our own day, in new conceptions of the relation of art to the new principles which all the sciences are developing; we find art thus vitalized and ourselves consciously following its organic movements; we are lifted above a commonplace routine tending to make of art a lifeless formalism; we experience, besides the reward of better practice, that highest joy which the Greeks possessed in an ingenuous, childish way, the joy resulting from the healthy exercise of all the parts of the intellect, imaginative and rational. No felicity equals this: it is the essence of the passion of the observer of nature, it lasts as long as life lasts. This result is to be attained in like manner in the art of medicine and it is in influences of this nature that we see the value of the study of medical history. The idea of a direct improvement of daily practice from copying the ancients was a conception resulting from the formal classical culture peculiar to the English universities, and to our own as far as we have imitated them. It is this formalism which has invited the criticism of men like John Stuart Mill and Charles Lyell, and disgusted such men as John Hunter; it is their vital knowledge of nature which animates the scientific critics; if they seem to write one-sidedly, narrowly, it is to a great extent due to national awkwardness and reserve. What they feel is easily read between the lines; it is their own experience of the pleasure derived from the search for truth as it is in nature which animates them; it is the new comforter promised to man, the "spirit of truth." No branch of original research has a monopoly of it, the investigators in philology, psychology, embryology share alike in this joy of the greatest poets. When methods inspired by this spirit are practised, harmony will exist between the advocates of so-called "classical" and "scientific" methods of teaching. It will be observed that all the rays of enlightenment are radiated from one common centre; medical history simply makes us conscious of our relations to it.

To those who recall the sketch of Dr. Adams, by Dr. John Brown, it may seem harsh to speak of his historical views as so mistaken; it is pathetic to think of his vast learning, his capabilities, his laborious country practice, and then of the sum of it all; but the sum was exactly what the view of medical history current in England, the view which he himself wished to extend, not reform, made possible. Dr. Brown speaks of some suggestions of Dr. Adams, made just before his death, as to the propriety of instituting a chair of medical history in the universities. With a tenderness, which we confess ourselves unable to repress, for this man of delicate taste and robust strength, this liberal, high-minded, Scotch country practitioner, we can only regard his disappointment as a mercy; in all human probability, he would have wasted the fine

aroma of his fame in such an effort at teaching the history of medicine as he contemplated.

To return to the seventh century, the epoch in which the caliph Oman destroyed the Alexandrian school and library, we find European thought ruled by the monks, philosophy held in servitude by the church, and but a few names indicating obscure conflicts over fragments of ancient philosophies. In the failure of anything like earnest effort we find constant repetition of traditions, dismal, bombastic affectation of magisterial wisdom. Urinoscopy, dogmatic wrangles concerning the pulse, stupid, unnatural quarrels over the place, manner and time of blood-letting, of which all were densely ignorant, fill volume after volume which the printing-press has preserved for us,— let us be duly thankful for the destruction of much of it. A thorough study of these humbugs, as such, not as a part of dignified professional history, would furnish considerable material in refutation of those who, reading modern thought in the writings of the Middle Ages, have attempted to change the prevalent conception of this barbarism and make the epoch appear as one of wonderful achievements intellectually. Medical history here vindicates its value in furnishing an objective study which concerns the thought of almost every great scholar of the Middle Ages; the facts it furnishes cannot be refuted, they prove the existence of a widespread process of dry-rot more destructive than the rudest attempt of any body of iconoclasts; excesses might and generally were followed by reactions, but long-continued and careful nursing was requisite to restore the vitality of the intellectual life of Europe nearly extinguished in this period.

The caliphate of Bagdad soon became the seat of medical learning and Alexandria with a new library and trade extending in all directions, began to exhibit signs of new intellectual life. The influence of the Arabs makes it expedient to notice some of the leaders of Arabian medicine: Rhazes was one of the most prominent among them, in the ninth century, but Haly Abbas was the ruler, until, in the latter part of the tenth century Avicenna, the "prince of physicians," appeared. I fail to find in the famous canons anything indicating creative power or thorough observation; his elevation seems to be due to the ancients upon whose shoulders he stood. The Arabian physicians were the Arabian philosophers: we must remember this when we compare Arabian and Christian philosophy. Avicenna ranks far below Galen as a physician and observer and he is servile in his relation to Aristotle as he knew him, that is, as he was passed over to the Arabs in Arabian translations of Syrian texts made from the Greek. The Arabian commentators of Aristotle were free in their additions and opinions and probably Avicenna's philosophical liberalism, as opposed first to Mohammedan and later to Christian orthodoxy, has contributed something to his reputation.

A prominent trait of his physiology was his view of nutrition; he held that a moisture was separated from the blood from which "cambrium" was produced; that "cambrium" was then deposited like a dew upon the part to be nourished and assimilated. He was no anatomist, but the Koran may be responsible for the deficiency; it is said that as a boy he knew the Koran by heart.

Serapion is another prominent Arabian name, particularly in their great specialty of materia medica; but Albucasis, the great Arabian surgeon of Cordova, was still more famous. He was the originator of prophylactic blood-letting, and we can remember him as the possible prototype of Sangrado. On the whole the Spanish-Arabian schools furnish one of the most pleasing subjects to the medical historian of the Middle Ages. The broad, liberal toleration, which generally ruled among them, is a contrast to the conditions generally prevailing in Europe at the period. Avenzoar, of Seville, in teaching Averroes, contributed more, perhaps, than any one Arabian to the awakening of European thought. It would be difficult to exaggerate the importance of Averroes as a factor in the advanced thought of the latter period of the Middle Ages. The result seems not so much due to him personally, as a thinker, as to the fact that he fell heir to all that Arabian philosophy had attained in working over the thoughts of Aristotle, and that at a time when circumstances favored his passing their results, in his own name, over to the Europeans, then in leading-strings. The Jews, the means of much of this transfer, were not without their own philosophy, as the reputation of Maimonides, the body physician of Saladin, proves. His name also recalls the approaching destruction of Bagdad by the Mongolians (1256). Constantinople had already fallen to the barbarian Franks, who worked new destruction there. The little flash of light among the Greeks had soon died out and they, as well as the Western World, had fallen under the Arabian influence. The fall of the Arabs was rapid, Genoa and Venice took their trade; their Christian neighbors became more powerful in Spain, and finally Ferdinand Third, of Castile, conquered Cordova, confined the Moors to Grenada, whence, as Prescott eloquently relates the pitiful story, they were driven in the fifteenth century by Ferdinand the Catholic. The Arabians furnished us with some chemistry, some materia medica, some astronomy and some mathematics; in the main they were channels, rather than rivers of thought from living fountains. The blossoms of Bagdad, Cordova, Toledo and Seville *never* furnished the promised fruit as far as the science and art of medicine is concerned.

The first light in the Western World came from the court of Charlemagne. Charles Martel saved Europe from Mohammedan conquest, Charlemagne, perhaps, planted the seed which was to enable Europe to conquer its intellectual freedom. Some, at least, of the precious material came from the English Benedictine schools founded by Gregory First in England; it might be safer to call them botanic gardens. Be this as it may, from the academy founded by Alcuin, at the court of Charlemagne, originated the University of Paris, the centre of scientific thought in Europe for a long period. Medicine perhaps was never in a more degraded condition than in the eighth and ninth centuries in Christian Europe. The lowest order of monks attended, in the main, to general practice; their medical knowledge was derived almost wholly from Cœlius Aurelianus. He had compended chiefly from Soranus, and from a compend of Gariopontus; they could not use even Galen's texts without these dilutions; various councils of the Church for various reasons forbade the practice of medicine to all but the most insignificant of her servants, and they were much restricted in surgery. Two schools in the course of time became famous, Monte Casino and Salerno; both were developed in connection with Benedictine monasteries,

against the will of the church, which had long before forbidden the founder of the order to indulge his tendency to furnish medical instruction. The efforts, however, were winked at until in the ninth century instruction was openly given at Monte Casino. In the eleventh century Constantinus Africanus was attracted to Monte Casino and there translated many of the works of the Arabians and some of the ancients, which it is said he gave out as of his own composition. Pope Sylvester (Gerbert) favored him as directing a movement towards a study of nature and against the formal logic which constituted all that the scholastics knew of their adored Aristotle, a sad instance of the irony of fate. By some medicine and more miracle, worked by the relics of the saints, and by the salubrity of the climate, Salerno grew to be a famous school; we all recall the famous "Regimen Salernitanum" dedicated to the "King of England." The date of the visit of Prince Robert, who was probably the king referred to, marks the epoch of the first crusade and the period in which the reputation of the school was at the highest: the antidotarium of Præpositus is one of its most famous literary products. Ægidius Corbolensis, later physician to Philip Augustus, wrote a work on the urine which, like its fellows, is a splendid object-lesson of the dogmatism and ponderosity of the densely ignorant. It is impossible, without the aid of the bibliography of the period, to conceive of the popularity of works of this kind. They were edited and commented on *ad infinitum*. Yet this was the leading production of a professor in a school where, by the edict of the liberal and cultured Frederic, the student was obliged to study logic three years and medicine and surgery five years before he could go up for examination for the degree of magister; the title of doctor was generally held only by the teacher. One should read his urinoscopy and imagine the examination. Verily, the art of resting the burden of medical reform and progress upon the shoulders of the student was perfected at an early period. The growth of the universities soon extinguished these local schools.

If we recur for a moment to the time of Charlemagne, we find Scotus Erigena, an Irishman, pushing speculation beyond the bounds which had been established. In this attempt of his some have seen the origin of "scholasticism." Scotus, himself, attempted to furnish a rational ground for certain articles of faith, as we have noticed that Sylvester did at a later period, in favoring Constantinus Africanus. The gist of his efforts was a working over of the conceptions of the Neoplatonists in accordance with the views of his time, but eventually the movement thus originated became the famous discussion between the "realists" and the "nominalists" as to the interpretation which should be given to the so-called "universals." Referring to what was known of the ideas of Plato and imbued with the teachings of the Neoplatonists, the realists saw, in what we should call the conception of species or genera, the nearest approach to the reality, which it was thought God had in mind in creation; the larger the number of objects included in the abstract conception, the more it was supposed to contain of the form and power, as a part of the world soul, derived from God; hence, the more real and the more universal coincided. Following this line of thought, the realists stumbled upon pantheism. Opposed to these ideas were those resting upon the nominalist's conceptions of Aristotle's meaning, that the individual thing contained the original; the first substance, that the name of the the species was simply a name, not in any sense a real universal, as was the original material. Most of the medical body were realists. When Duns Scotus, a Franciscan, became the leader, they were Scotists, as their opponents under the leadership of Thomas of Aquina, a Dominican, were Thomists. Duns Scotus was astrologer to Frederick Second, and at his court he came under the influence of the Saracenic thought prevailing there. This position was the cause of his being the first to introduce to the Europeans the works of Aristotle, as commented upon by Averroes, and much of the advanced thinking which his name stands for, and which divides, in a manner, the Middle Ages into two distinct periods, was due to this Saracenic Aristotelianism. The Aristotle of the scholastics, previous to this movement, was represented simply by his logic, by which they marshalled and drilled their own motley intellectual forces; the Saracenic Aristotle had been idealized by the Arabians until Aristotelianism and Platonism were almost blended. Albertus Magnus, a Dominican, and Roger Bacon, a Franciscan, was one of the sharpest opponents of the Thomists. Time and space forbid anything like an adequate notice of this really great English thinker. During these conflicts of the scholastics we meet the names of Gilbert of England, Roger of Parma, William of Salicetus, and Lanfranc, the originator of the tourniquet. This last was more distinguished for his surgical observations than for his operations; he probably was the first who described syphilitic infection following connection, if we allow that syphilis existed in the Middle Ages. In spite of Simon's learned opposition I believe it did; it was the *record* not the disease which is, or was, lacking; for instance, in the comments upon the carmina urinæ of Ægidius Corbolensis, of which I have spoken, a line in pure scholastic style gives the origin of the word "urine" as derived from the fact: "That what it touches it bites, dries and burns." Gentilis de Fulgineo, in his comment in the edition of 1483, says that this drying, burning quality of the urine is shown, and the name derived, from the fact that urine is good for ulcers and pustules, and particularly against "ulcera virge."

Lanfranc, of Mailand, fled to Paris on account of troubles incident to the conflict between the Guelphs and Ghibbelines. More important than their battles was the peaceful revolution which William of Occam effected in the first half of the fourteenth century, but the growing rationalism, which he did so much to favor, was not the only influence which was breaking up the stagnation of the Middle Ages. If he, by his insistence that it was "unnecessary to multiply beings without reason," did much to put the "gods to flight," mysticism was doing as much, unconsciously, by the boldness of its speculations concerning forms and beliefs which had seemed so well established.

As the fourteenth century dawned upon the intellectual awakening, the morning must have threatened a fearful day. No wonder that the world accepted, freely, the warnings of the mystic prophets, who had long held that the end of all things was near at hand. The black death, the persecution of the Jews, the wild processions of the flagellants, the dancing mania, were causes and characteristics of the terror, superstition and fanaticism prevailing.

The struggles of Guelphs and Ghibbelines convulsed

Italy; Spain and Portugal were torn by the desperate strife of Christian and Moor; England and France were at war and two emperors were arrayed against each other in Germany. We can imagine how the rumors of all these terrible happenings filled men's ears, deafening them to the great, free thoughts of Dante, as they deafened the medical profession to the invectives of Petrarch. No one of the time, in or out of the profession, seems to have felt so acutely the all-pervading humbug of the medicine of the time. His attacks upon Padua, the embodiment, to him, of Arabian materialism, his fiery warnings to the doctors against their slavish imitation of ancient models, were not the creed of a narrow churchman; nearly two hundred years before Luther, he attacked the abuses of the church as freely as did the great reformer. As Browning has taught us, poets are often seers. Bernard of Gordon knew better than Petrarch; the father of quacks was doubly assured by the *success* of the "Lilium Medicinæ." Did not John of Gaddesden, quack that he was, become the first of the native court physicians of England? Gentiles de Fulgineo knew how to make his comments popular, but Guy de Chauliac was a proof that something of reality was still existing in the profession, and probably his fight for the restoration of the ligature, and, in a rude way, for anatomy, is only a sample of a thousand other struggles made by less favored, but not less honorable, medical men in more obscure fields. In general, though, the medical profession seemed unaffected by the manifest signs of progress; it continued for a long time perfectly satisfied with its status as a sort of appendix to the learned world. In the universities it was not an independent discipline; how could it be? There was no system of anatomy or of physiology worth mentioning; no chemistry, no physics excepting as these principles of medicine were embodied in the various "philosophies." The forces which were to make us an independent organic body became apparent only after the lapse of some centuries. One of their first manifestations during the Renascence, capable as they are of so many interpretations, will be the subject of our next talk.

Original Articles.

THE QUESTION OF THE CURABILITY OF CANCER OF THE BREAST.[1]

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The great change which has been wrought by the extension of the field of operation in cancer of the breast, and the improved technique of the operation introduced from time to time, and more noticeably of recent years by Halsted, gives renewed interest to statistics in this operation as they continue to accumulate.

The contrast between the rare successes of former years and the present time I have already called attention to in a recent paper.[2]

As the value of statistics is increased with the number of cases tabulated, it has seemed to me worth while to review the situation after an interval of two years, and to endeavor to glean whatever there may be to throw light upon the great question: In how many cases may we hope eventually to save life on the lines on which surgeons are now working?

The accompanying tables include seventy-two cases covering an interval of fifteen years. It does not include all cases operated upon during that period, as the histories of many of the earlier cases could not be obtained, and many cases had to be thrown out, owing to imperfect pathological records.

No.	Date.	Diag.	Recur. Date.	Alive and well.	Death, date and cause.
1	July, '83	Colloid	July, '88, nodule, axilla removed	May, '95	
2	June, '84	Cancer	O	'93	Jan., '94, with apoplexy.
3	Dec., '84	Scirrhus	O	April, '97	
4	Mar., '85	Cancer (recur.)	Feb., '94, in scar, removed	Mar., '98	
5	July, '85	Cancer	O		July, '91, with "sporadic cholera."
6	Nov., '86	Med. ca.	March, '89, local		? No answer.
7	Jan., '87	Cancer	April, '87, local		?
8	Feb., '87	Cancer	May, '98, removed, and again later		Oct., '89, with recur.
9	Mar., '87	Cancer	O	Mar., '97 Mar., '98	
10	Oct., '87	Med. ca.	Local and general		Aug., '88, with recur.
11	Dec., '87	Med. ca.	Sternum and gener.		Sept., '90, with recur.
12	Jan., '88	Med. ca.	June, '89, local		Jan., '90, with recur.
13	Feb., '88	Scirrhus	April, '88, local		Aug., '88, with recur.
14	Oct., '88	Cancer	O	Mar., '93	
15	Oct., '88	Scirrhus	Not locally		Aug., '91, with recur.
16	Jan., '89	Med. ca.	At autopsy		Dec., '92, with recur.
17	Jan., '89	Med. ca.	Feb., '89, local, removed Feb., '90, local, removed		? No answer.
18	Jan., '89	Cancer	Nov., '89, local, removed		Sept., '91, with recur.
19	Feb., '89	Cancer	O	Mar., '98	
20	April, '89	Med. ca.	General		Sept., '90, with recur.
21	Aug., '89	Med. ca.	5-6 mos., local		July, '90, with recur.
22	Nov., '98	Scirrhus	3 mos., local		Nov., '89, with recur.
23	Nov., '89	Cancer	May, '90, local, removed		May, '91, with recur.
24	Nov., '89	?	Oct., '90, hopeless After 2 yrs., local		May, '95, with recur.
25	Dec., '89	Cancer	Other breast after 9 mos., quack. Recur. scar		May, '93, with recur.
26	Jan., '90	Cancer	Autumn, '92, local		Aug., '93,
27	Jan., '90	Cancer	April, '93, general O Local		with recur. Feb., '91, with recur. (?)
28	Mar., '90	Scirrhus	Local		Oct., '90, with recur.
29	Nov., '91	?	O Local (?)		May, '92. ?
30	Feb., '92	Med. ca.			Oct., '92.
31	Oct., '92	Med. ca.	June, '93, local		May, '94, with recur.
32	Nov., '92	Cancer	June, '93, local		June, '94, with recur.
33	Nov., '92	Cancer	O	Mar., '98	
34	Jan., '93	Med. ca.	Nov., '94, local, removed	Jan., '98	
35	Jan., '93	Scirrhus	Jan., '95, local and general		? No answer.
36	Feb., '93	Cancer	O	April, '98	
37	April, '93	Scirrhus	O	Mar., '98	
38	June, '93	Scirrhus	Local and general		Mar., '94, with recur.
39	June, '93	Med. ca.	Local and general		Mar., '94, with recur.
40	Sept., '93	Scirrhus	O	June, '94	
41	Jan., '94	Med. ca.	July, '94, local		June, '95, with recur.
42	Jan., '94	Scirrhus	O	Mar., '98	

[1] Read before the Massachusetts Medical Society, June 7, 1898, and recommended for publication by the Society.

[2] Boston Medical and Surgical Journal, Nos. 12, 14, 1896.

No.	Date.	Diag.	Recur. Date.	Alive and well.	Death, date and cause.
43	Jan., '94	Scirrhus	Wound never heal'd		July, '95, with recur.
44	Feb., '94	Med. ca.	General		July, '97, with recur.
45	Feb., '94	Scirrhus	In spine		Aug., '95, with recur.
46	Feb., '94	Med. ca.	General		June, '94, with recur.
47	Feb., '94	Med. ca.	March, '94		April, '94, with recur.
48	July, '94	Med. ca.	March, '97, local, removed		
49	Oct., '94	Scirrhus	May, '98, local Jan., '98, local, removed		Mar., '98, with recur.
50	Nov., '94	Med. ca.	Aug., '95, local, removed		?
51	Dec., '94	Scirrhus	Oct., '96, hopeless ?	May, '95	?
52	Jan., '95	Scirrhus	O	Mar., '98	
53	Jan., '95	Cancer	O	Mar., '98	
54	Mar., '95	Scirrhus	O	Mar., '98	
55	April, '95	Med. ca.	Feb., '96, local operated (?)		April, '97, with recur.
56	Aug., '95	Med. ca.	June, '96, local, operated July, '97, inoperable		
57	Sept., '95	Scirrhus	O	Mar., '98	
58	Oct., '95	Scirrhus	O	Mar., '98	
59	Nov., '95	Med. ca.	Immediate		Jan., '96, with recur.
60	Dec., '95	Med. ca.	Operated? ?	Nov., '96	
61	Jan., '96	Med. ca.	May, '96, local		Mar., '97, with recur.
62	Jan., '96	Med. ca.	O	Mar., '98	
63	June, '96	Scirrhus	O	Mar., '98	
64	Oct., '96	Med. ca.	O	Oct., '97	
65	Oct., '96	Cancer	?		Dec., '97, with recur.
66	Dec., '96	Med. ca.	?		June, '97, "suddenly."
67	Jan., '97	Med. ca.	Jan., '98, local, removed	Feb., '98	
68	June, '97	Med. ca.	O	Jan., '98	
69	Nov., '97	Med. ca.	May, '98, sternum and humerus		
70	Dec., '97	Cancer	?		
71	Jan., '98	Carcinoma	O		Jan., '98, pulmonary em. 5th day.
72	Feb., '98	Med. ca.	O	April, '98	

Of the 72 cases there are 26 known to be alive at the present time, and 38 known to have died. Of the latter, there were, however, 2 cases in which death occurred of other diseases than cancer, and that too long after the danger limit had been passed. In other words, nearly half of the cases are known to be living to-day, or to have died of other disease than cancer.

Of the 26 living cases there are 3 who now have recurrence of the disease, and 4 who have had a recurrence but have remained well at the present time.

The following table shows in a general way the locality of the relapse:

RECURRENCES.

	Local.	General.	Doubtful.	Humerus and Sternum.	Totals.
Dead	25	7	3		35
Alive	1	1		1	3
Unreported	4		4		8
Alive and well	4				4
Totals,	34	8	7	1	50

The above table shows the great importance of a careful study of the proper limits of the field of operation, for we find that in the 50 cases in which recurrence took place there were 34 local recurrences and only 8 in which the field of operation remained in a healthy condition.

Such statistics emphasize the importance of strict attention to the rules now laid down, namely, the removal of a large margin of the cutaneous covering of the breast, a careful deflection of the edges of the wound, and removal of the subcutaneous fat for a considerable distance around the mammary gland, the removal of the pectoral muscles, and a minute and painstaking dissection around the sheath of the axillary vessels.

In only one of the successful cases was there a dissection of the supraclavicular glands. I have, however, four times operated upon the neck of a patient for infected glands, in which case the original operation field has remained healthy for four years. I feel confident that had the supraclavicular region been explored at that time a small gland would have been discovered, and a permanent cure would have been secured.

It is my custom at the present time to explore the posterior cervical triangle in all cases, and although in the majority I fail to find disease, this addition to the operation does not appear to add to its danger or to the amount of shock.

In regard to the situation of the growth we find that in 25 cases no statement is made as to the locality. This leaves 47 cases. In 13 of these the disease was found in the upper and outer quadrant, in the upper and inner quadrant in 6 cases; in the central region in 6 cases; in the upper hemisphere in 5; in the lower and outer quadrant in 5; in the outer hemisphere in 3; in the inner hemisphere in 1.

These figures show that the disease is more frequently found in the upper and outer quadrant than in any other quadrant, in the upper hemisphere more frequently than in the lower hemisphere, and in the outer hemisphere than in the inner hemisphere.

In two cases the disease originated on the anterior axillary fold and I have named this in a class by itself as "Cancer of the anterior axillary border," the disease apparently beginning as in Paget's disease in the skin, and subsequently involving the breast.

The periods during which recurrences are observed are also of value, and they are given in the subjoined table. In 9 cases it was not possible to learn the date of recurrence, but of the other 41 cases 37 occurred during the first three years; of the remaining 4 cases 2 recurrences were found between three and four years, and 2 between five and nine years. One of these exceptionally late recurrences was a colloid cancer in which an axillary gland evidently had been overlooked. In the case in which a nodule was removed from the pectoral region nine years after the original operation, it seems reasonable to assume that a new infection had taken place in a para-mammary gland. The existence of these glands is now well recognized by anatomists, and the fact shows the importance of including all such adjacent gland tissue in the field of operation.

This table also shows how rare are the recurrences after three years.

It seems to me highly probable that many cases, reported as unusually late recurrences, are cases which have not been carefully examined. The patient's word has been taken when suddenly a generalization of the disease reveals the true condition. Every case should receive a thorough examination by a competent surgeon at the end of three years. If, under these circumstances, the report is favorable, there is prob-

ably not more than one chance in a hundred that the disease will ever show itself again.

RECURRENCES: BEFORE

	½ yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	?	5-9 yrs.	Totals
General	2		2	2	2			8
Local	11	11	5	3		2	2	34
Doubtful						7		7
Humerus and sternum	1							1
Totals	14	11	7	5	2	9	2	50

Taking the three years' limit as the gauge of success, we find there are seventeen such cases. Two of these are dead, one dying, ten years after the operation, of apoplexy, and one dying of sporadic cholera six years after the operation. Three of these have had recurrences, one in the axilla and two in the pectoral region. These nodules were removed, and the patients are now alive and well, one of them three years, one four years and one ten years after the last operation. Of the remaining twelve, the operation was performed in three cases over three years ago; in four cases over four years ago; in two cases over five years ago; in one over nine years ago; in one eleven years ago; and in one case over twelve years ago.

An analysis of the diagnosis in these seventeen cases shows that nine were reported to be cases of "cancer," six reported as cases of "scirrhus," one medullary cancer and one colloid cancer.

With one exception only, the cures consist of the milder forms of cancer, if we assume that the term "cancer" indicates a condition midway between scirrhus and medullary.

It is somewhat discouraging to find that only one case of genuine medullary cancer has been rescued from the lot. In this case there was a recurrence in the pectoral region two years later, which was successfully removed, the patient since remaining well for over three years. The clinical history of the case bore out, therefore, the original diagnosis, and showed it to be correct.

The percentage of cures, or those which have passed the three years' limit in 55 cases, is 30.9 per cent.

In estimating these results it should be remembered that these operations extend over a period of fifteen years, and that the earlier operations do not compare with the later ones in thoroughness. They do, however, cover that period in which the axilla was dissected in all cases, but of the earlier operations not much more can be said than this. If now we begin with January 1, 1893, and take in all those cases which come up to the three years' limit, that is, up to April, 1895, or just three years ago, we find 22 cases with 8 cures or a percentage of cures of 36.3 per cent.

A large number of these cases include those of hospital patients, many of them of malignant types, and patients who have delayed calling attention to their disease. If now we take the cases in private practice only, during this same period, we find they are 12 in number with 6 deaths, 1 recurrence, and 5 cures, or 41.6 per cent. On the other hand, taking all the cases in private practice during fifteen years we find the percentage 34.7 per cent.

Comparing these figures with those given in statistics collected by Dowd,[3] we find 199 cases, with 71 cures, or 39.6 per cent. This percentage seems remarkably high for so large a series, but it includes Rottero's series with 50 per cent., including only 15 cases, and Cheyne's with 57 per cent., including only 33 cases.

[3] Annals of Surgery, March, 1898.

It is possible that some surgeons include those cases only in which an operation gives a chance for cure, selecting those in which they have advised a radical operation with the distinct view to a permanent cure. In my own series those cases only have been omitted where the entire growth could not be removed, such operations being clearly only palliative.

It is evident that high percentages can be obtained only when cases are selected with some care, but present experience with the new operation hardly justifies one as yet in deciding what are the limits of the curable class. Until then many incurable cases will undoubtedly be subjected to operation. It seems at least a more humane policy to sacrifice our statistics for the sake of saving occasionally a desperate case.

On the other hand, it is to be hoped that wider experience will enable us to spare many a patient the ordeal of a useless operation. It should be said here, however, that even in palliative operations life is prolonged and suffering often spared to a remarkable degree.

In regard to causation: in 8 cases only is trauma given as a probable cause of the disease; in 4 cases there was a history of abscess, and in 2 cases a history of mastitis.

The question of the involvement of the axillary and supraclavicular glands is one of great practical interest. The record mentions glands felt in the axilla in 54 cases only. My impression is that in 1 or 2 cases only has a careful search by the pathologist failed to unearth infected glands in this region. In 5 cases supraclavicular glands are mentioned. Three of these cases are dead, one is alive, and in one the result is unknown.

In only 15 cases is there a record of a retraction of the nipple. In my opinion this is a most unreliable symptom. One often sees an inversion of the nipple which is quite a different condition, and one quite frequently associated with anatomical peculiarities. It has no pathological significance.

There may be extensive disease of the breast without a sign of retraction of the nipple. This retraction is caused by the involvement of the ducts and their cicatricial contraction. The dimplings of the skin over the nodule are of greater significance, and are in marked contrast to the protrusion of the growth, in the case of a benign tumor or cyst, above the surface when the patient is in the recumbent posture.

One of the first questions asked a patient with a nodule in the breast usually is: "How long has it existed?" The average period in 68 cases was 10.1 months. It is interesting to note that in 16 cures the average period was 11.6 months, whereas in 38 failures the average period was 9.4 months.

In private practice the general average was somewhat better, being only 7.8 months. Here, again, we find 11 successful cases, giving an average of 8 months; and 17 failures, giving only 7.6 months as the average time.

The inference to be drawn from this is, that the longer duration of time during which the disease existed previous to the operation in the successful cases clearly shows a milder form of the disease.

In one case I have succeeded in operating within three weeks from the time the tumor was known *not* to exist. In this case a minute infected gland was found in the axilla. The patient was cured by the operation.

In summing up the results obtained from these data I think we may be justified in saying that a surgical operation can save, as a rule, those cases coming under the head of "scirrhus," and even of "cancer"; that in the case of "medullary cancer" an earlier interference may claim a fair proportion. Before, however, the percentages of success are to be permanently placed so high that we may hope to save over one-half of our cases, the professional public must be educated up to that point that they will send their patients early, and not wait until the case has become hopeless before they advise their patient to consult a specialist.

More difficult still will it be to instruct patients themselves to realize the importance of not neglecting any lump in the breast, and also to overcome that strange propensity in the cancerous to conceal their disease.

CONGENITAL DEFECT OF THE FIBULA.

BY F. J. COTTON, M.D., AND A. L. CHUTE, M.D.

The cases we have to report are of those classed in the literature either as congenital defect of the fibula or as intrauterine fracture of the tibia, according as the



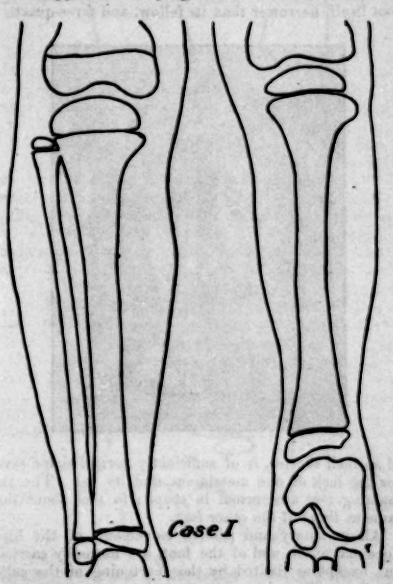
one or the other feature has chanced to impress the individual observer.

The first case, G. H., a boy of seven years, was an inmate of the Marcella Street Home. There was no history of trauma at birth or before, no deformities noted as having occurred in the family. The deformity was first noticed when the child began to walk. The limp then noticed has rather increased with his growth, though the disability has never been extreme. The boy is now robust, and, except for the left leg, normally formed. This leg shows marked shortening, the tibia shows a bend forward, and the foot, which has but four toes, is in marked valgus. The total shortening is two and one-half inches, one-half inch of which is due to shortening of the femur. The girth of the left thigh is two inches less than on the right. The patella is distinctly smaller than on the sound side. The circumference of the calf is one and one-quarter inches less on the left. No trace of the fibula is to be felt. At the middle part of the tibia there is a distinct bend forward. Over the most salient point of this bend is a faint scar-like line something over one-half inch in length.

The foot shows no equinus, and the whole sole is used in walking. The foot is, however, markedly everted when weight is borne on it, the inner malleolus coming much nearer the ground than in the sound foot. There are but four toes, the great toe being considerably larger in all dimensions than that of the other foot, the other toes of normal size and shape.

Examination with the fluoroscope and x-ray photographs showed no trace of the fibula. There was defect of one toe and of the corresponding metatarsus. The astragalus, calcis, and probably the cuboid, are represented by a fused mass of bone of irregular shape; the scaphoid and the three cuneiforms were normal, at least in position.

The boy had, as a result of the shortening, a marked scoliosis, with rotation, the dorsal convexity to the left; this disappeared on lying down. He had a marked



limp, but never had any pain, and was active. The boy left the institution shortly after being seen, and has never had other treatment than a high sole.

Case II. E. F., a girl of eight, was also at the Marcella Street Home. The deformity in this case was very similar to that in Case I, but the disability greater. This child also is, save for the deformity of the leg, normally formed, and, though small, yet of strong frame.

The shortening in this case is two and three-eighths inches for the lower leg, and one-half inch for the thigh. The whole limb is evidently atrophic, the difference in girth of the two thighs being three-quarters of an inch; of the calves, two inches difference. The

femur at its lower end is obviously less in width. The patella is notably less in size.

There is obviously a defect of the fibula, only in its lower quarter is anything to be made out, and there is no trace of an external malleolus — the outer edge of the upper joint surface of the astragalus is palpable, during flexion and extension, where the external malleolus should be.

The tibia, shortened but not thickened, is definitely bent, though at a very obtuse angle. The apex of this angle is about the junction of lower and middle thirds of the tibia, and is directed forward and slightly inward. There is no sign of thickening about the angle.

Over the most salient point of this bend is a longitudinal scar-like depression, about three-eighths of an inch in length, which is more adherent to the bone than is the surrounding skin.

The foot is held in equinus by contraction of the calf muscles, and is used in strong plantar flexion, showing considerable pronation when bearing weight. The peronei seem to be little if at all contracted. The foot itself, narrower than its fellow, and three-quarters



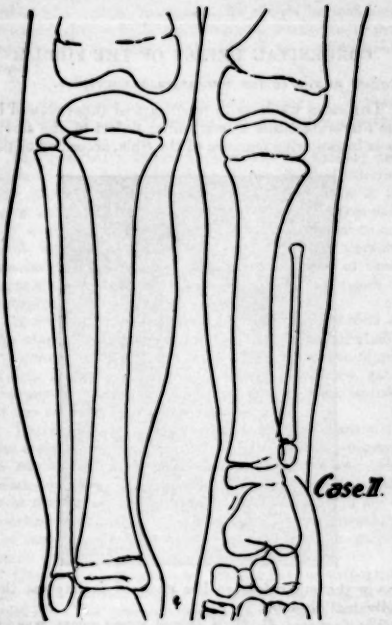
of an inch shorter, is of sufficiently normal shape save for the lack of one metatarsus and its toe. The remaining toes are normal in shape; in size about the same as those of the other foot.

All voluntary and passive movements of the hip, knee and ankle, and of the foot, are normally carried out, except as limited by the shortening of the calf-muscles. There is no paresis, and no essential muscles are absent. The reflexes are normal. There is a scoliosis due to the shortening which wholly disappears in the prone position.

The presence of a large hairy mole on the thigh of the lame side is of interest, though probably of no significance.

The x-ray examination showed a normal right leg; on the left the following anomalies: A considerable decrease in width of the lower epiphysis of the femur, no marked change in its thickness vertically. The upper epiphysis of the tibia, likewise of normal thickness but much less in width, shows in the photograph as three-eighths of an inch less. The intercondylar groove of the femur is much less marked than on the sound side. Below the head the tibia approaches the normal thickness and the shafts of the two tibiæ are of about the same thickness. The lower tibial epiphysis is narrower (one and one-sixteenth vs. one and seven-sixteenths) and considerably thinner vertically. The epiphyseal line grows somewhat indistinct toward the outer side. The angle in the tibia does not show in the front view. Viewing the leg from the side with the fluoroscope one sees a definite but very obtuse angle in the bone without any thickening of the shaft.

The fibula measures but three-fifths as much in length as the sound one, the shaft is little more than half the normal diameter. The upper epiphysis does not show on the plate though the conformation of the end of the bone suggests its presence, unossified. The lower epiphysis is present, of two-thirds the normal



size, but so shifted upward that its tip comes opposite the epiphyseal line of the tibia; the external malleolus, therefore, does not enter into the articulation at the ankle.

In the tarsus is to be seen a mass evidently representing fused astragalus and calcis, and probably scaphoid as well. The cuboid and the three cuneiforms are distinct. The first and second metatarsals have the normal articulation, the third articulates with the outer cuneiform and with the cuboid, the fourth with the cuboid alone. The metatarsals and phalanges are, save for the defect of one toe and metatarsal, entirely normal.

Before being seen by us the child had had no treatment. With a view largely to correction of the scoliosis, a tenotomy of the tendo-Achillis was performed

and a boot with a high sole applied. This reduced the scoliosis to a minimum but the valgus position of the foot was rather aggravated. Accordingly, a sole support with double uprights was so arranged by raising the heel end in the boot as to leave the foot in moderate plantar flexion. This apparatus in connection with the high-soled boot has somewhat improved the gait.

Case III. J. R., age two years. Seen through the kindness of Dr. E. G. Brackett. Is an outpatient at the Children's Hospital.

At birth it was noticed that the child had but three toes on the right foot and that the foot was held in a queer position which, from the description of the parents, must have been a calcaneo-valgus. Under no other treatment than the mother's manipulation this "queer" position has almost entirely disappeared.



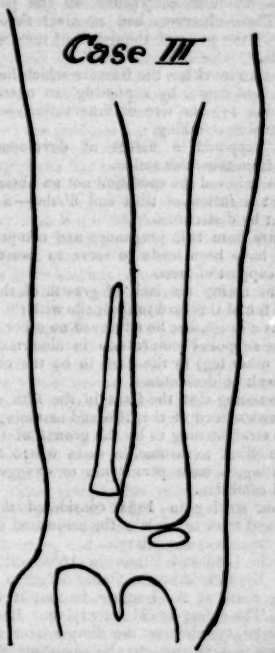
At present the right leg is one and one-half inches shorter than the left, all of this shortening apparently in the lower leg. The thigh and calf are both smaller than on the normal side and the shaft and condyles of the femur feel distinctly slenderer than on the left. The patella is not much over one-third the normal size.

The tibia shows a bowing forward a little below the middle, with very little deviation, however, in the long axis of the bone. Over and about the bend the tissues are somewhat thickened but there is apparently no thickening of the bone. Over the bend anteriorly is a faint scar-like line half an inch in length.

No fibula could be felt and the prominence of the external malleolus was wholly wanting.

The radiographs, however, show a rudimentary fibula about two inches in length, the lower end of which is nearly one-half inch above the lower epiphyseal line of the tibia. Nothing is to be seen of either epiphysis, but from the shape of the lower end of the fibula it seems probable that the lower epiphysis exists, though it probably, as in the last case, does not reach the ankle-joint. The upper end of the fibula, unlike that in Case II, tapers off gradually and there is no reason to suppose the presence of an epiphysis.

The foot in this case has but three toes, sufficiently normal in size and shape, and is one and one-half inches shorter and much narrower than the left. It is held in very slight equinus while the valgus deformity is extreme. The foot can be brought up nearly to a right angle with the leg, but correction of the valgus is only partly possible. This is evidently due to contraction of the peronei, which are drawn tense long before the normal position can be attained.



Radiographs show an apparent fusion of the talus and calcis. The cuboid is much smaller than normal, — the scaphoid and the three cuneiforms somewhat small. Two metatarsals with the corresponding phalanges are wanting.

The boy, who has walked for eight or ten months, has an extreme limp and is not active, but has no pain. He is now wearing a valgus shoe with a T-strap.

In neither of the two cases (I and III) in which a complete history was obtainable, could we get any account of hereditary deformity, prenatal trauma or abnormal labor.

Many cases of this sort have been reported and there has been much discussion as to their etiology, with a number of theories to account for the relatively constant association of these apparently non-related deformities.

Most of the earlier observers (Gurlt, Brodhurst, Swan and others) and some of the later (as Brinton, Ithen, Braun and Bussachi) have believed the bend in the tibia a result of intrauterine fracture, while the scar was supposed to indicate compound fracture. The accepted etiology was either external trauma or excessive muscular contraction on the part of the fetus. These observers had no clear theory to advance as to the cause of the defect of toes, metatarsus and fibula.

Little accounted for the fracture which he accepted as proximate cause, by supposing an over-action of muscles due to some vice of innervation — which, of course, explains nothing.

Broca supposed a defect of development with fracture from muscular action.

Adams believed the condition not an absence of the fibula but a fusion of tibia and fibula — a view not borne out by dissections.

Pressure from twin pregnancy and compression by the cord have been made to serve as causes, though with no support of facts.

Blassius noting the lack of growth of the limb in later life found this hard to reconcile with the theory of trauma as a cause, but he advanced no other theory.

Chance supposed compression in abnormal position (against other leg) by the cord to be the cause; the scar a result of decubitus.

Fricke noting that the fetus in the fifth and sixth week shows a bend of the tibia and assuming the factor in its straightening to be the growth of the fibula — was inclined to assume, in cases where the fibula was wanting, a mere persistence or exaggeration of this fetal condition.

Brinton, writing in 1884, considered the trauma primary and tried to explain the associated defects as in some vague way secondary.

Ithen, in 1885 and Braun in 1886, still held to trauma; Braun holding the fibular defect to be a predisposing cause of the fracture, in that it weakened the leg. The defect he did not explain. Recognizing the uncertainty whether the dimple over the angle was or was not a true scar, he suggested the possibility of decubitus as a cause.

(To be continued.)

THE TOXIN OF DIPHTHERIA AND ITS ANTITOXIN.[1]

BY THEOBALD SMITH, M.D., BOSTON.

(Concluded from No. 7, p. 160.)

The essential nature of the lesions produced by the toxin of diphtheria upon tissues and cells composing them has been the subject of many investigations. To obtain a simple morphological expression of the effect of this poison is an object worth striving for if it is indeed ever realizable. The lesions observed in the throats of patients and in the subcutis of guinea-pigs after an injection of the toxin do not reveal anything specific, and are readily ranged under the head of inflammation. The lesions observed in the cardiac muscle in the experimentally induced disease have been regarded by Comba, Mollard and Regaut, and others as primarily affecting the muscle fibres. Interstitial lesions are slight and purely secondary. When we come to the nervous system to which the observed paralyses early drew the attention of histologists, a number of non-specific changes are recognizable. In the central nervous system, degenerative changes in the cells of the anterior horns have been described recently by Murajeff as following all injections of toxin whether leading to paralyses or not, but similar changes have been found by Goldscheider and Flatau for tetanus, by Kempner and Pollack for the poison of botulismus (meat-poison), and by Kossel for the poison of blood serum from eels. The work of studying the lesions of the nervous system due to toxins has been begun in earnest and in due time this subject will become clarified. At present we are not in position to deduce from such work any simple conclusions. The peripheral nerves have also received their share of attention and the paralyses referred to a neuritis as well as to degenerative changes. Quite recently Dr. J. J. Thomas[2] has published interesting studies upon the degenerative changes observed in the pneumogastric nerve in those cases in which heart complications followed diphtheria.

To these miscellaneous lesions associated with diphtheria, we must add the diffuse and focal cell necroses in various organs observed by Oertel, Welch and Flexner, Barbacci and others, and the appearance, especially in the kidneys, of peculiar cells by Councilman, denominated plasma cells, and probably derived, according to him, from lymphoid elements. In view of these various apparently unrelated phenomena, we cannot ascribe to the toxin of diphtheria any specific easily-recognizable effect upon the body, but must be content at present with assuming that the toxic activity embraces tissues of different orders and with variously differentiated functions, or else that it affects injuriously some one tissue incorporated with the various specialized tissues. This one tissue seems to be that composing the vascular system, and I am inclined to look upon injury to the vascular walls, especially those of the capillaries, as perhaps the *fons et origo* of the whole set of pathological changes. When the toxin is injected in very large quantities, the effect, as Barbacci[3] states, passes beyond the domain of the vascular system and is manifest in other tissues as well. This view does not, in any way, stand opposed to the one that diphtheria toxin is essentially a cell poison with a special affinity for the nucleus.

Moving parallel with these investigations are those forced upon us by the discovery and applicability of diphtheria antitoxin as a curative agent. The importance of accurately gauging the neutralizing power of antitoxin upon the toxin has led to much study upon the immediate relation of the toxin of diphtheria to its antitoxin. Considerable light has been shed upon the whole subject from this, the biological direction.

It will be remembered that two views of the action of antitoxins have been current. One assumes that

[1] Read by invitation before the Massachusetts Medical Society, June 7, 1898, and recommended for publication by the Society.

[2] Boston Medical and Surgical Journal. 1898.

[3] Centralb. f. allg. Pathol., 1896, No. 8.

the antitoxins stimulate the cells of the body whereby the latter are put into a condition to neutralise or destroy the toxins. The action of antitoxins upon toxins is, according to this theory, indirect. The other theory claims a direct action of antitoxins upon toxins. The actual demonstration of this direct action has been attempted by various observers, but, owing to the difficulties in the way of experiments of this nature, the results are conflicting. The direct action upon toxins of their specific antitoxins has, however, been demonstrated for two other toxins, one of vegetable origin, the toxalbumin of the castor-bean, ricin; and one of animal origin, the toxin in the blood serum of the *Muræniдæ* or eels.

Ricin, which was first studied by Ehrlich, has the power to produce an agglutination of red corpuscles both in the body and in extravascular blood. In the body the clots of red corpuscles produced by minute doses of ricin lead to more or less extensive sloughing of the skin if the animal survives. Ehrlich has demonstrated the important fact that susceptible animals can be made immune to large doses of this poison by treating them with gradually increasing doses. The blood and the milk of these immunized animals possess protective powers; are, in other words, antitoxic.

Recently he has shown that the antitoxin acts directly upon the toxin in the test-tube. When ricin is added to blood, kept fluid by citrate of soda, it lumps the red corpuscles together. The masses thus formed settle down. If serum from an immunized animal be added to the blood, this clumping does not take place upon the addition of ricin. The phenomena take place under definite quantitative laws. A given amount of a certain serum neutralizes a given amount of ricin and no more.

Kossel has extended this proof by experimenting with the poisonous blood serum of eels. This serum, of which 0.1 cubic centimetre is sufficient to kill a rabbit weighing a kilogram in three to four minutes, produces, when administered in smaller doses, emaciation, partial paralysis of the extremities, and death after several days. It dissolves red corpuscles. Rabbits can be immunized by injecting very minute doses. When eel serum is added to defibrinated, diluted blood, the coloring matter is promptly extracted from the corpuscles. If, however, some serum from an immunized rabbit be added to the blood beforehand, the corpuscles remain intact. Here, also, the quantity of immune serum needed is directly proportional to the quantity of eel serum used. These experiments are destined to strengthen the hypothesis that antitoxins act upon or combine with their respective toxins and thereby render them harmless. They do not, however, account for the whole process of toxin immunity into which other factors probably enter. Much more persistent experimentation will be needed to clear up the obscurity that still clings to the marvellous action of antitoxin.

To explain more consistently the various phenomena of antitoxic action, Ehrlich has formulated a very ingenious theory relating both to the mode of production of antitoxins in the body and their action upon toxins. This theory, which has been termed latterly the lateral-chain theory of immunity (*Seitenkettentheorie*), seems to have not only stimulated researches but to have gained strength through such researches. In a recent paper[9] I made a very brief statement of this theory, which for the sake of making subsequent statements more intelligible I will repeat here.

If we regard the cell substance as composed of complex molecules with lateral chains, the toxin is assumed to unite with one or more of these lateral chains, thereby incapacitating the cell. This union is due to an affinity of the toxin for the cell substance, which affinity expresses itself to us clinically as susceptibility. If there were no affinity according to this theory, there would be no susceptibility, no disease. If only very minute doses of toxin are introduced so as not to incapacitate the cell substance too much, that part lost by union with the toxin is reproduced by the cell. The repeated injection of gradually increasing doses of poison, if cautiously done, stimulates the cell, so to speak, to an ever-increasing production of that part of itself to which the toxin becomes attached. This overproduction of a specific cell substance leads finally to a shedding into the blood stream where the shed material appears as an antitoxin ready to combine with any toxin for which it possesses definite affinities. This substance, as we know, is effective not only in the blood of the producer but in the blood of other beings into which it is introduced.

This hypothesis has been received with much interest and its general applicability will no doubt be thoroughly tested. Already Wasserman[10] has shown that in harmony with it the substance of the normal spinal cord and of the brain possesses well-marked affinities for the tetanus toxin. This affinity is shown by the fact that a given amount of nervous tissue neutralizes a certain quantity of tetanus toxin. Thus three times the fatal dose of toxin, mixed with one-third of the finely-crushed spinal cord of a guinea-pig suspended in salt solution, produces no effect when injected. The toxin, in other words, has been in some way neutralized by the tissues of the cord. Similar experiments carried out by Bomstein to determine those cell territories having a special affinity for the diphtheria toxin led to no satisfactory results.

Concerning the nature of antitoxins we are as much in the dark as with toxins. We know, however, that they are much more stable substances than toxins. The antitoxic power of blood serum from immunized animals is fairly permanent even after many months. It resists freezing and even exposure to direct sunlight for a short time. It can endure a higher temperature than the toxin without losing its efficacy. Various conjectures have been made as to its character, some claiming that it is a very specific substance, others that the antitoxic power results from a change in certain regular constituents of the blood. It is precipitable by various substances which precipitate the albumins and globulins of the blood and seems to go with them when the serum is separated in layers of different densities by freezing. Smirnow has made the claim that antitoxins can be produced from toxins by electrolysis, but his claims, at least so far as the production of an effective substance goes, seem to grow more shadowy.

When antitoxin is injected into animals, it begins to disappear, according to Behring, on the fourth day, appearing then in the milk and the urine. The blood contains the greater amount, and it would seem that most of it, at least, remains in the blood until it disappears from the body. In horses, which have been actively immunized with toxins, Dzierzgowski found the largest amount of antitoxin in the blood and serous

[9] The Toxin and Antitoxin of Tetanus. Boston Medical and Surgical Journal, 1898, p. 202.

[10] Berl. klin. Woch., 1898, p. 209.

fluids, including the edema formed where the toxin is injected. In the organs there is comparatively little to be detected. Bomstein found that if enough antitoxin be injected into dogs to supply seven units per cubic centimetres of blood, three units were found on the third day, 1.5 on the sixth, 0.3 on the fourteenth, and none on the eighteenth day; the organs did not absorb it, as they contained very little; similarly, very little was found in the urine. These facts agree very well with the restricted period of passive immunity induced by antitoxin.

The occasionally observed toxic effect of antitoxic serum must be ascribed to a peculiar personal idiosyncrasy manifested in the presence of horse's serum. Likewise the rashes and occasional joint affections are referable to the serum and not to the antitoxin. We are, however, fortunate in having horse's serum to use since Uhlenhuth has recently shown that compared with the serum from a number of other mammals, it is by far the least toxic of them all.

In presenting you with a large amount of miscellaneous, somewhat conflicting and but feebly coherent information upon the toxin of diphtheria and its antitoxin, I shall feel gratified if it will simply convey to you the conviction that toxins and antitoxins are realities, entities, whose obscure nature and action need not stand in the way of our belief that we have reached the right path in studying them, and that we need but go on to gain, if not wider and deeper information, at least better practical results in the combating of toxic disease.

However, we still hear voices occasionally raised in medical journals against the diphtheria bacillus as the chief cause of the disease whose name it bears. This is not surprising. Clinical experience is so subject to chance and at the mercy of unknown factors, that discussions of this nature are likely to appear as long as medical science shall be cultivated. The unambiguous results obtained by experimentation in the laboratory, though often too rashly applied, become more and more the guiding star of the young physician as he enters upon his profession. Laboratory work will give, not only a steadiness of the judgment, but also an abiding sense of the circumscription of our knowledge and of the need for its continual rectification. If the laboratory did nothing else, it would amply repay to the profession and its clients the costs of maintenance.

Clinical Department.

PROTARGOL AS A SUBSTITUTE FOR NITRATE OF SILVER IN OPHTHALMIA NEONATORUM AND OTHER CONJUNCTIVAL DISEASES.

BY FREDERICK E. CHENEY, M.D., BOSTON.

SINCE Professor Neisser's first paper concerning protargol, published in the *Berlin Dermatologische Centralblatt* for October, 1897, the new silver salt has been tried by other gentlemen in urethral gonorrhea and, so far as I have learned, with satisfactory results. In diseases of the conjunctiva it has been used by Dr. Alt,[1] and by Darier,[2] who have reported upon it very favorably, and, probably by many others.

Protargol is a chemical combination of silver with a protein substance and is in the form of a fine yellowish powder. It contains 8.3 per cent. of silver (the nitrate of silver contains 6.35 per cent.) and is freely soluble in water. It produces almost no irritation and is not precipitated by albumin or salt solutions. The fact that it does not stain the skin is something decidedly in its favor, and I have seen no discoloration of the conjunctiva from its prolonged use.

During my recent four months' service at the Massachusetts Charitable Eye and Ear Infirmary I have used protargol in one hundred and thirty cases and it seems to me to possess all the advantages of nitrate of silver, and none of its disadvantages. The very slight degree of irritation which it causes, and in a large proportion of cases the almost complete absence of pain are its chief points of recommendation. A ten-per-cent. solution causes rather less flushing of the eye and discomfort to the patient than a one-per-cent solution of nitrate of silver. A two- or four-per-cent solution can be used without cocaine and the irritation is not, as a rule, more than would be induced by a one-half grain to the ounce solution of zinc sulphate.

There have been an unusually large number of ophthalmia neonatorum cases this summer and I have used this remedy in twenty-five cases. In ten of these I have used protargol in the right eye and nitrate of silver in the left in order that the results might be more accurately compared. A two- or four-per-cent. solution was used, more often the latter, and a one- or two-per-cent. solution of nitrate of silver. The silver was applied to the conjunctiva in the usual way with a camel's hair brush; the protargol in some cases with the brush and in some cases with absorbent cotton, while in a few cases a quarter dropper full of the solution was emptied over the conjunctiva. When applied with absorbent cotton, the cotton was used on the end of a probe and the protargol was sopped onto the conjunctiva, not brushed roughly over it. The lesser degree of irritation in the protargol eye was usually very noticeable. There was not the profuse lachrymation and the eye would often be open in a minute or two after the application, while the nitrate of silver eye would be tightly closed. It was also observed that there was less tendency to the formation of a fibrinous coagulate, the grayish shreds of tissue and "false membranes" in the protargol eyes. In regard to the rapidity of the decrease and duration of the discharge, there is such a variation in different cases and often in the eyes of the individual case, that it is impossible to judge with any degree of certainty. I should say, however, that in this respect the two remedies rank about equal.

As a prophylactic, Dr. William L. Richardson, who has used protargol at the Lying-in Hospital, very kindly writes me as follows:

"Protargol (two-per-cent.) has been used in every baby's eyes at birth for about three months. None of the redness and swelling of the lids and none of the temporary secretion that immediately follows the use of nitrate of silver (one-per-cent) have been observed. In the few cases of purulent ophthalmia that have been treated with protargol the length of the course of the disease has apparently only been slightly shortened, but the severity of the attack has been decidedly lessened. Whether this has been due to the protargol or not, we have been, during the three months it has been used, more successful in confining the infection to one eye."

The fact that nitrate of silver does cause more or less irritation has, I think, prevented its very general

[1] American Journal of Ophthalmology, January, 1898.
[2] Bull. Gén. de Therap., Paris, 1898, cxxxv.

use as a prophylactic outside of lying-in hospitals. If protargol is as valuable, and it in all probability is, this objection is overcome and it is to be hoped that it will be generally adopted in routine practice.

I have had but two cases of gonorrheal ophthalmia in the adult this summer and protargol was used in both. In the first the cornea was extensively infiltrated when the patient came in and, as was to be expected, it perforated two days later. The second case was of less severity and made a rapid and satisfactory recovery.

In acute catarrhal conjunctivitis protargol was used in fifty-three cases. Most of them recovered promptly, but perhaps not more rapidly than they might have under some of the other commonly used remedies. In a few cases recovery was slow and they seemed to do better under a collyrium of zinc sulphate and boric acid. It was generally prescribed in a one-half-per-cent. solution, dropped into the eyes every three or four hours. In twenty-nine cases of chronic conjunctivitis it acted very favorably in some, in others it seemed to have no especial action one way or the other, and in one case it proved a decided irritant. In twelve cases of chronic granular conjunctivitis a four-per cent. solution was used, and in three or four cases a ten-per-cent. solution. It seemed as satisfactory in its results as silver nitrate and was certainly much more agreeable to the patient. It was also tried in ten cases of lachrymal obstruction with purulent secretion. In two or three cases where it was prescribed as a one-half-per-cent. collyrium, the discharge ceased entirely within a few days. In other cases where the discharge was profuse it was injected into the sac in a four- or ten-per-cent. solution. The discharge usually lessened, but perhaps not more rapidly than it would have done under various other remedies.

Medical Progress.

REPORT ON DISEASES IN CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

RECOGNITION OF SOME OF THE LESS COMMON DISEASES OF THE NEW-BORN.[1]

An Unusual Case of Acute Sepsis resembling Winckel's Disease.

An infant, nine days old, was brought to the hospital with a history of slight fever and diarrhea on the previous day. On the following day the infant presented symptoms of a very severe character, consisting of marked apathy, extreme cyanosis of the hands and feet, two small gangrenous areas on the hand and foot, hyperemic and hemorrhagic spots in the skin, very rapid respiration, temperature 38.8° C., considerable albumin and hematoidin in the urine, and fluid stools. The gangrene spread rapidly; the infant collapsed; slight convulsions occurred; and death followed in twelve hours. No noteworthy abnormalities were found in the organs at the autopsy. Cultures made at the autopsy from the blood showed a severe acute streptococcus infection. It was ascertained later that the mother had died of puerperal sepsis.

[1] H. Finkelstein: Berliner klin. Woch., No. 23, 1896; Jahrbuch f. Kinderheilkunde, Bd. xlvi, 1897, s. 173.

A Case of Hemorrhagic Diathesis.

A premature infant, eight days old, was brought to the hospital in a collapsed condition. The temperature was subnormal; the skin was slightly icteric; there were hemorrhages in the skin and in the mucous membranes of the mouth. The liver and spleen were enlarged. The infant died three days after entering the hospital. The autopsy showed hemorrhagic areas in the lungs, gummata in the spleen, hemorrhages into the kidneys, numerous grayish miliary areas in the liver, a moderate quantity of fluid blood in the colon, and syphilitic osteo-chondritis. Cultures from the organs showed the presence of an organism which was pathogenic for mice and caused septicemia; injected into the peritoneal cavities of rabbits, it produced a hemorrhagic diathesis (bacillus hemorrhagicus Kolb). The bacillus pyocyaneus was also present in the organs. The author believes that this case may be of value in refuting cases of so-called syphilis hemorrhagica neonatorum.

ESTIMATION OF THE ALKALINITY OF THE BLOOD IN RHACHITIC AND OTHER CHILDREN.

Stoeltzner[2] estimated the alkalinity of the blood from rhachitic children and compared the results with those obtained from the examination of the blood from non-rhachitic children. Rhachitis was found to have no influence upon the alkalinity of the blood. These experiments were made with the object of testing the accuracy of Pommer's hypothesis, that the deficiency of lime salts in the newly-formed bone was due to the diminished alkalinity of the blood.

Stoeltzner admits that the results are not conclusive evidence against Pommer's theory, because it is possible that in rhachitic children the lime salts may be so firmly combined in the lymph as to prevent them from becoming deposited in the osteoid tissue.

CONGENITAL RHACHITIS.

Tschistowitsch[3] insists that the only certain method of diagnosis of congenital rhachitis is by microscopic examination of the epiphyseal ends of the long bones and especially of the ribs at their junction with the cartilages. Kassowitz and others found rhachitis in upwards of 80 per cent. of new-born infants. According to Tschistowitsch, this was due to faulty observations. In many of these cases the diagnosis of rhachitis was made from the clinical appearances, and Tschistowitsch claims that apparent abnormalities in the bones of new-born infants, such as enlarged epiphyses, widening of the fontanelles and sutures, cranio-tabes, etc., may occur in bones which are normal microscopically. Microscopic examinations were made of portions of the bones from 100 infants. Many of these infants were premature, and the remainder were from a few days to a month old. The conclusions arrived at are that rhachitis begins after birth in almost all cases, but that in rare cases it may begin in the later months of fetal life, if the intrauterine conditions are such as to produce nutritive disturbances in the fetus; the new-born infant may possess a certain predisposition to rhachitis, and, if its surroundings are unfavorable, it acquires the disease. Causes which favor the development of rhachitis are bad hygiene and

[2] Jahrbuch f. Kinderheilkunde, Bd. xlv, Heft i, s. 29-44; Centralblatt f. allg. Pathologie u. patholog. Anatomie, February 10, 1896, Nos. 3 and 4.

[3] Virchow's Archiv., Bd. cxlviii, s. 149, u. s. 289; Fortschritte der Medicin, February 15, Bd. xvi, s. 125, 1898.

faulty feeding. Congenital rhachitis is to be distinguished from cases of so-called rhachitis fetalis, better names for which are micromelia pseudo-rhachitica, or chondrodystrophia fetalis. In this disease atrophic and degenerative changes occur which interfere with the nutrition of the growing cartilage. There is some danger of mistaking syphilitic bones and also normal bones, in which the microscopic appearances are somewhat unusual, owing to the rapid growth at this age, for rhachitis.

A CASE OF PURULENT INFLAMMATION IN THE JOINT IN THE COURSE OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

Franz [4] describes a case of epidemic cerebro-spinal meningitis, with a joint complication, which occurred in a child two and a half years. The intracellular diplococcus was present, both in the spinal fluid obtained by lumbar puncture and in the purulent exudation in the right ankle-joint. The child died from a secondary streptococcus infection, during the course of which the left elbow-joint and various other joints of the hand became infected.

The autopsy showed that the acute inflammatory process produced by the diplococcus intracellularis in the meninges and in the right ankle-joint had ceased, and but slight evidence of it remained.

The author concludes that the diplococcus intracellularis can produce lesions in the joints as well as in the meninges and that these lesions show a tendency to recovery. This is not the case in joint lesions produced by the streptococcus or staphylococcus.

SYMPTOMS DUE TO INTESTINAL PARASITES.

E. Peiper [5] gives a number of interesting details on this subject. A case in which severe symptoms, resembling those of meningitis, rapidly disappeared after the expulsion of a number of round worms serves to introduce some remarks on the possible explanation of such cases. The common explanation is that the nervous symptoms are reflex, due to irritation by the worms in the intestines. Peiper does not deny the possibility of this, but thinks that another explanation is more probable, namely, that the parasite produces poisons which act on the nervous system. Peiper gives the credit to von Linstow for his researches on the toxicity of the helminths. The older literature contains many references to the dangers of ascarides. Many modern authors report cases in which severe symptoms seemed due to no other cause.

Attacks of severe opisthotonos (Lutz), hysterical convulsions (Mosler), hydrocephalus symptoms, with hemiplegia (Eichburg and others), even fatal nervous symptoms with those of ileus (Mosler), severe anemia (Baelz, Leichtenstern and others), have been traced beyond doubt to these parasites. As to the presence of toxic substances, von Siebold mentioned attacks of sneezing, lachrymation, and itching and swelling of the fingers after handling ascarides. Huber and Hüchenmeister have mentioned the peculiar odor of the round worms, and Leuckart, who observed that it was extracted by alcohol, supposed it might reside in an oil. Von Linstow and Raillet have each noticed swelling of the conjunctiva after working with ascarides. Arthur and Chanson, who found an irritating substance in ascariosis from a horse, found that two cubic centimetres of the juice of such a worm produced violent symptoms, and finally death, in a rabbit. Why severe toxic symptoms are not oftener observed in cases of ascariosis is difficult to explain. Perhaps duration of the disease and number and activity of the parasites are important.

Many interesting details are given regarding the toxic symptoms due to tapeworm and echinococci. Brieger obtained the platinum salt of a substance in echinococcus fluid that was fatal to mice. In the case of tricocephalus, and also of oxyuris, the observations have not been carried so far with some of the preceding, but the symptoms of trichinosis point to a toxic influence. Experiments with the feeding of intestinal worms to animals show a great toxicity. Further experiments are promising of important results.

THE IMPOSSIBILITY OF IMMUNITY AGAINST INFLUENZA.

Clinical experience shows that influenza not only does not confer immunity against future infection, but actually seems to favor it. This is confirmed by animal experiments carried on by Delius and Kolle.[6] By what must be considered a remarkable exhibition of skill and perseverance, they cultivated large quantities of influenza bacilli in pigeon-blood and bouillon and on blood-agar. With these cultures — less readily with filtrates — they were able to kill guinea-pigs, with symptoms resembling those of cholera, typhoid fever, etc. By none of the known methods were they able to produce immunity. In guinea-pigs, rabbits, dogs, sheep and goats, a certain degree of resistance was obtained against the poison, but neither antitoxic nor bactericidal effects were obtained.

CONTRIBUTION TO THE PATHOLOGY OF PERTUSSIS.

Reasoning from the analogy of many other infectious diseases, Fröhlich,[7] of Breslau, has succeeded in discovering that the blood of children suffering from whooping-cough shows an enormous increase in the leucocytes, which is especially marked in the third or fourth week, that is, at the maximum of intensity of the disease. This leucocytosis is principally due to the lymphocytes, which are especially increased as compared with the polynuclear cells and the eosinophiles. In some of the cases this lymphocytosis reached 50 or 60 per cent., an unusually high degree as compared with the other forms of leucocytosis, in which ordinarily a proportion of only 15 to 20 per cent. is reached. In these cases, however, the age of the patient must be taken into account, since leucocytosis with predominance of lymphocytes is, according to Weiss, very common in childhood.

The cause of leucocytosis in pertussis, Fröhlich thinks, can be explained by the fact demonstrated by Blumenthol, that there is a constant increase in the amount of uric acid excreted in the urine of these patients. Moreover, Horbaczewski has shown that in infectious diseases there is a constant relation between the exaggerated elimination of uric acid and the increase in the white corpuscles. The author suggests that the knowledge of the existence of leucocytosis in pertussis can be of practical value in the diagnosis of doubtful cases, especially where the clinical picture is incomplete, and

[4] Wiener klin. Woch., No. 15, 1897; Fortschrit. der Medicin, February 15, Bd. xvi, s. 142, 1898.
[5] Deutsche med. Woch., 1897, No. 48; American Journal of the Medical Sciences, February, 1898.
[6] Zeitschrift für Hygiene, Bd. xxiv; American Journal of the Medical Sciences, February, 1898.
[7] Jahrbuch f. Kinderheilkunde, 1897, Bd. xliv; American Journal of the Medical Sciences, April, 1898.

in preventing children with a spasmodic cough, which is not really pertussis, from being exposed to the disease among other children with well-marked and undoubted clinical symptoms.

ABSCESS OF THE BRAIN IN INFANTS.

Holt[8] sums up a careful study under this title, with the following conclusions:

(1) Abscess of the brain in children under five years is rare.

(2) The principal causes are otitis and traumatism.

(3) It rarely follows acute otitis, but most often neglected cases, and is usually secondary to disease of the petrous bone.

(4) In the cases occurring in infancy without evident cause, the source of infection is probably the ears, even though there is no discharge.

(5) The development of abscess after injury to the head without fracture of the skull is extremely rare. In nearly all of the traumatic cases definite cerebral symptoms show themselves within the first two weeks after the injury. In cases with falls as remote as several months, there is probably some other cause, such as latent otitis.

(6) In a large proportion of the cases only general symptoms are present, and these in very great variety.

(7) Focal symptoms may be misleading unless they are constant, and even then they may depend upon associated lesions, such as meningitis. Motor symptoms only can be trusted, since the sensory symptoms are difficult or impossible to determine in infants or young children.

(8) Rapid progress, fever and a history of injury or otitis generally make a diagnosis from tumor easy. In the slower cases, with little or no fever, valuable assistance may be obtained from lumbar puncture.

(9) From acute meningitis the diagnosis is more difficult, and in the cases in which there are only terminal symptoms the diagnosis is impossible. In the more protracted cases the distinctive points with reference to abscess are the slower and more irregular course and, as a rule, a lower temperature.

MUCUS IN STOOLS.

Adolf Schmidt,[9] who has done such useful work in the application of staining-methods to mucus in sputum, has made a valuable contribution to the present subject, one that is all the more important because the examination of feces is strangely neglected by many. Although the result of the present work may seem trifling, yet it includes a revision of many points that were long thought to be settled, but in fact were not. The details are indispensable to clinical investigators, but it will suffice here to give some of the author's conclusions. The conception of a special disease, enteritis membranacea, cannot be based on the quantity and shape of mucus in the stools. The clinical picture described by Nothnagel, under the name of colica mucosa, may, however, be separated from other forms of enteritis.

The basis of most membranous bodies in feces is mucin. The refractoriness of these masses is due to the constant presence of fats and soaps in considerable quantity. Fibrin has never been positively demonstrated in the mucous discharges. The number of round cells in intestinal mucus is not always so small as might be supposed from the examination of fresh preparations. For the diagnosis of ulcerative processes, the absence of mucus among the cells is more important than the appearance of large numbers of round cells. We have at present no certain guides to the sources of mucus or the cells in the mucus. The strongest evidence of a source in the small intestine is the digestion of the cell bodies, leaving the nuclei free. Except in case of very rapid transit through the intestine, mucus never passes undissolved from the small intestine to the anus.

[8] Archives of Pediatrics, March, 1898; American Journal of Medical Sciences, June, 1898.

[9] Zeitschrift f. klin. Med., Bd. xxxii, p. 260; American Journal of Medical Sciences, March, 1898.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION,

TWELFTH ANNUAL MEETING, BOSTON, MASS., MAY 17-19, 1898.

(Continued from No. 7, p. 175.)

FURTHER STUDIES UPON THE ARCH OF THE FOOT IN INFANCY AND CHILDHOOD.

DR. JOHN DANE, of Boston, said that in an article that he had published in the *Boston Medical and Surgical Journal* in 1892 he had stated, as the result of a study of wet tracings of the feet, that the arch of the foot seemed to be present at birth, that it then broke down when the child began to walk, but at the age of three or four years the arch appeared to be again well built up. However, further investigation, made by means of measurements and the study of hardened sections of the feet, had proved these first observations to be erroneous. The measurements referred to were taken from three points on the skin of the inner side of the foot, namely, (1) one over the metatarsophalangeal joint of the great toe; (2) another over the tuberosity of the scaphoid; (3) and a third, nearly over the bearing surface of the tuberosity of the os calcis — in other words, as nearly as possible to the back portion of the arch. A flat piece of wood was pressed against the foot to provide a base-line. In this way, one hundred measurements of the arch showed the average to be 1.5 cm. for a child of about one year of age, 1.51 for a child of two years, and 2.73 for a child between three and four years of age, while for an adult it was 2.7. A study of the hardened sections (mostly frozen) of infant feet, showed that the space is filled up with a pad of fat, and this was the reason for the erroneous impression given in the wet tracings. Each section showed plainly that the bones are in the normal position found in later life, and that the arch of the foot is perfectly formed in the vast majority of cases at birth. In sickly children with weak feet he urged the more extensive use of flat-foot plates; in well-nourished children nature provides a stout flat-foot pad in the shape of a pad of fat.

DR. MYERS said that he had recently been consulted by a number of women who were wearing badly-shaped shoes, and the arch of the foot had been badly flattened. In these cases, by attending to the condition of the tendo-Achillis, and by compressing the metatarsal bone, relief from the pain had been afforded, without any special variety of shoe being worn.

DR. R. H. SAYRE objected to the cork-sole shoe exhibited by Dr. Galloway because the extension passed

up to the toes. In one case of metatarsalgia that he had met with, the patient could only get relief by riding on a bicycle and pressing the pedal up into the arch of the foot. This gave immediate relief to the pain. By gouging out a place in the sole of the shoe, as a resting-place for the head of the metatarsal bone, relief was afforded.

Dr. Samuel Ketch, of New York, referred to the case of a woman about twenty-eight years of age, who had been suffering for a long time from the painful affection of the foot under discussion, and who had tried without benefit all sorts of shoes and other appliances. As she had marked family history of gout, she was placed under the classical treatment for this constitutional condition, with the result that the foot symptoms were entirely and absolutely relieved by this internal medication. Personally, he believed that most of these painful affections of the feet were due to general weakness and faulty mechanical conditions.

Dr. L. A. Weigel, of Rochester, said that some years ago he had expressed the opinion that many of these cases would not yield to mechanical treatment unless constitutional measures were used for the treatment of the underlying general condition. Mechanical support of the arch and attention to the shoe had not, in his hands, given the relief that he had hoped and expected would be obtained in most of these cases. He doubted very much the correctness of the explanation given by Morton of the pain experienced in these cases; certainly skiagraphs failed to show the condition as described.

Dr. Goldthwait said that the subject of anterior metatarsalgia could hardly be discussed without referring to conditions affecting the anterior transverse arch. He had explained the greater frequency of this condition in women than in men by the fact that men wear wider boots, which allow the bones to rest more on the ground. The study of skiagraphs of cases would show that in many instances the paroxysmal pain was not due to the crowding of the metatarsal bones together, but to the crowding of the first phalanx of the last toe against the head of the fourth metatarsal bone.

Dr. G. G. Davis, of Philadelphia, suggested that the flat-foot shoe would present a neater appearance if the sole of the shoe was raised on the inside. The simple device of wrapping adhesive plaster around the fourth toe in these cases of Morton's painful affection he had found exceedingly useful and effective.

Dr. Judson said that one objection to this footwear was that there was a liability of the foot to turn around inside of the shoe. It would be partly obviated by the vertical extension whereby, with the aid of buckles and adhesive plaster the foot could be kept from moving around very much inside the shoe.

Dr. Ketch remarked that many of these cases also had weak ankles, and it would be necessary to supplement the high shoe by some lateral support at the ankle, such as lacing.

TUBERCULOSIS OF BONES AND JOINTS.

Dr. Edward H. Nichols, of Boston, entertained the Association in the evening by an address at the Harvard Medical School on the above topic, illustrating it by numerous lantern slides. He said that disease of the bones and joints is considered to be tubercular: (1) upon the more or less constant presence of the tubercle bacillus in these diseased tissues; (2) upon the occurrence of the essential tubercular structures in the diseased bones and joints, that is, the miliary tubercle; (3) when by inoculation of the tissue into susceptible animals general tubercular disease is produced in those animals; (4) when under certain circumstances, by inoculating animals with material from these bones or joints, or by inoculating them with pure cultures of tubercle bacilli and then injuring their joints, there can be produced a tubercular process exactly resembling that seen in tubercular-joint disease in the human subject; (5) when general tubercular disease is secondary to the primary focus in the diseased joint. Injuries of moderate severity favor the occurrence of tubercular disease in bones and joints. In a very large proportion of cases of tubercular disease in these structures there is found a pre-existing focus from which the bone disease has probably been derived — usually either tubercular disease in the bronchial or mesenteric lymph nodes. The process almost invariably begins in the epiphysis of the long bones, but in the short bones the process oftentimes begins in the shaft and spreads rapidly to the adjacent bone. Most writers think that primary synovial tuberculosis is fairly common, but after an exhaustive examination in one hundred and twenty cases of joint disease he was compelled to say that he had never met with a single instance in primary synovitis. In spinal tuberculosis, the shape of the kyphos depends upon the rapidity of the process. An abscess is very commonly found at autopsy, but is often overlooked during life. Abscesses may cause displacement, distortion or constriction of the aorta. Out of twenty cases of excision of the hip-joint that he had examined, the disease was found to have begun in the acetabulum in more than half of the cases. In disease of the knee-joint the process may begin in either of the bones.

Dr. J. Collins Warren, of Harvard University, said that he thought that the occasion was opportune for making the announcement that through the generosity of a lady of Boston, lately deceased, provision had been made for scientific research into the treatment of such diseases as had hitherto proved to be incurable. Regarding the remarks made by Dr. Nichols, he thought an essential point, and one of considerable practical moment, was the extensiveness of the tubercular process in disease of bones and joints. There had been a tendency of late to dwell somewhat more upon tuberculosis originating in the synovial membrane of the joint, but in view of what had just been said it did not seem desirable to adopt such partial operations as erasion of a joint or excision of the synovial membrane. In most cases the old operation of excision of the joint would be found better.

Dr. William T. Councilman, of Harvard University, spoke of the great debt which pathology owes to the surgeon, and dwelt on the far-reaching influence of the work done by such great scientists as John Hunter, Virchow, Billroth and Volkmann.

Drs. R. H. Sayre, V. P. Gibney and E. H. Bradford responded on behalf of the Association.

SECOND DAY.

A PROPOSED APPARATUS FOR PREVENTING THE SHORTENING IN THE SITTING POSITION CAUSED BY POTT'S DISEASE.

Dr. A. B. Judson, of New York, raised the question as to whether the position of a patient with Pott's disease might not be improved by giving greater height

in the sitting position through the agency of an apparatus to be worn under the clothes, and so constructed as to collapse as the patient rises, and come into play again automatically upon assuming the sitting posture. Such an apparatus should have its bearings not only on the ischiatic tuberosity, but also on the posterior surface of the femoral shaft.

THE ESTABLISHMENT OF AN ORTHOPEDIC APPLIANCE SHOP.

Dr. Lemuel F. Woodward, of Worcester, present by invitation, presented a communication upon this subject. He showed from experience and statistics that while the most satisfactory method, from the scientific point of view, was for a hospital or private orthopedic surgeon to have his own instrument-maker, such a plan was not practicable on the ground of expense except where the amount of work turned out was very large. The next best plan was to contract for the work with a mechanic and a harness-maker, the latter to attend to the covering and padding of the braces.

THE FORCIBLE CORRECTION OF SPINAL DEFORMITY BY STAGES UNDER AN ANESTHETIC.

Dr. V. P. Gibney, of New York, reported five cases which he had treated according to this new method. Notwithstanding the apparent severity of this operation, the children did not seem to react scarcely at all to it, and the chief difficulty afterwards was to keep them quiet in bed. He said that our idea of the necessity of securing anchylosis as soon as possible would seem in the light of this new experience, to require considerable revision. Many cases could be hyperextended without an anesthetic, and in time an almost complete recession of the deformity obtained. From these observations it followed that we should be more than ever on the alert to make an early and accurate diagnosis.

THE IMMEDIATE REDUCTION OF THE DEFORMITY OF POTT'S DISEASE, BOTH WITH AND WITHOUT ETHER.

Dr. J. E. Goldthwait, of Boston, gave a report of his work in this field. He said that at the very outset he had been impressed with the ease with which the deformity could be corrected and the difficulty of maintaining it after it had been corrected. He had found that the treatment was greatly simplified and improved by using a rectangular iron frame with cross-straps on which the patient lies. The head and shoulders are entirely unsupported, so that they make traction on the bodies of the vertebræ. In comparatively few cases had he found it necessary to use additional traction, although the frame was provided with a windlass and ratchet appliance at either end for this purpose. The frame had been originally devised for facilitating the application of plaster-of-Paris jackets. It had been found perfectly possible to carry out this treatment in out-patients. The operation seemed to him justifiable in selected cases,— those doing badly and having a contracted chest and stooping shoulders. He had operated upon only one case in which there was an abscess, but this had done well. If the correction could be accomplished without force it seemed to him that the frequent applications of jackets, gaining a little each time, would be the preferable plan. One should expect a considerable recurrence of the deformity, because from the pathology of the disease he knew that there was very little effort at repair, and one could hardly expect the large gap between the vertebræ to be filled in with bone.

FORCIBLE STRAIGHTENING OF SPINAL CURVATURES UNDER COMPLETE ANESTHESIA, WITH REPORTED CASES.

Dr. John Ridlon, of Chicago, read this paper. He said that his first operation of this kind had been performed on June 23, 1897, and that since that time he had operated on sixteen cases of spondylitis, seven of scoliosis, and one of rhachitic curvatures. He recorded in detail his more recent cases, and stated that four of them had had demonstrable abscesses, one an old sinus, and one paraplegia. No complications arose from the abscess or the sinus, and the paraplegia was positively benefited. In two instances it was not possible to straighten the spine at all with what seemed to him a justifiable amount of force. Pressure-sores had been frequent under the plaster-of-Paris dressing, in spite of the liberal use of padding of felt. He had not been entirely satisfied with the use of the plaster-of-Paris, and felt that he could get equally good results from the use of a posterior spinal brace. In all of the cases the deformity had relapsed to some extent when the jacket and the traction had been removed. As yet only two of his patients were allowed to get up and walk around. In no case did he think he had obtained a reliable bony solidification at the point of the disease. The risk involved in this new method of treatment seemed to him to be only the danger of general tuberculosis or tubercular meningitis, just as there is after forcible straightening of tubercular joints. This risk he estimated to be at least ten per cent. The presence of abscess did not seem to add to the danger if reasonable gentleness were employed. It was reasonable to suppose that the period of treatment would be prolonged by this method of forcible straightening. Ordinarily only a pressure of a few pounds would be necessary to rectify the deformity, while an assistant made traction on the lower and upper extremities.

(*To be continued.*)

Recent Literature.

Diseases of the Nervous System. By Charles E. Beevor, M.D., Lond., F.R.C.P. 12mo., pp. xvi, 432. With twenty-eight illustrations and thirteen plates. Philadelphia: P. Blakiston, Son & Co. 1898.

The words "Practical Series" on the back of this volume give apparently the chief reason for its existence, although in the preface its objects are said to be "to enable students and practitioners to know how to examine patients suffering from diseases of the nervous system, and assist them to marshal their facts in a definite order, and also to serve as an introduction to the study of the larger standard works on neurology." The subject, however, is treated as fully in the sections on diseases of the nervous system in the best works on internal medicine, and they serve the purpose of an introduction to the study of neurology fully as well as any manual of this size can do, so that the special need for its production is not apparent. The book, too, is hardly worthy of its author's reputation. It is clearly

written and well arranged, but it is hardly abreast of our present knowledge; in fact, almost every chapter reads as if it were written on the basis of our knowledge of five or ten years ago. Nothing is said, for example, of infection as a possible cause of anterior poliomyelitis, Landry's paralysis is said to have no pathological basis, pseudo-hypertrophic paralysis and idiopathic atrophy are regarded as distinct diseases, anemia and hyperemia of the brain are still discussed, and various affections are not even mentioned, such as hereditary cerebellar ataxia and Gilles de la Tourette's disease. Even were such a manual needed, therefore, the present volume can hardly be recommended.

Yellow Fever in the West Indies. By Izett Anderson, M.D., Edinburgh, etc. London: H. K. Lewis. 1898.

Dr. Anderson offers as his credentials to the reader of this little book a residence and active medical practice in British Guiana and Jamaica, extending over thirty-four years. It is a small octavo of one hundred pages, which covers the ground which it attempts in a simple, clear, plain, practical manner. It gives the results of the personal experience of a good observer and careful practitioner. The book has a timely interest for those who are professionally or otherwise interested in the welfare of our troops in the present West Indian Campaign, and may be warmly recommended. There is no book-making about it.

Diseases of the Eye. By Edward Nettleship, F.R.C.S. Revised and edited by W. T. Holmes Spicer, M.A., M.B., F.R.C.S. Pp. 528. Philadelphia: Lea Bros. & Co. 1897.

A volume which can successfully pass through six English and five American editions may reasonably be considered as possessing popular favor through merit of its own and for this reason is the more enduring than if it were the result of passing fancy. This fifth American edition has again been thoroughly modernized through the efforts of Mr. Holmes Spicer, and the final chapter which discusses the examination of railway employés has been subjected to careful revision by its author, Professor Thomson. This book may be considered one of the best of its kind, containing, as it does, the essentials of ophthalmology within convenient dimensions.

Protection of British Troops by Means of the Medical Supervision of Women. — A memorial signed by upward of one thousand mothers in various parts of the country has been forwarded by the Countess of Carlisle to Lord Salisbury, protesting against the principle involved in protecting the health of British troops by the system of medical supervision of women in the cantonments. — *Medical News.*

Congress of Experimental and Therapeutic Hypnotism. — A Congress of Experimental and Therapeutic Hypnotism has been arranged to follow the close of the International Medical Congress in Paris in the month of August, 1900. Four sections are planned: (1) The clinical and therapeutic relations of hypnotism and suggestion; (2) their medico-legal relations; (3) their psycho-physical relations, and (4) their applications in pedagogy and sociology.

THE BOSTON

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THE HEALTH OF THE ARMY.

The return of the Santiago Army from Cuba has brought home to the people of this country the very severe climatic conditions to which our troops have been exposed, and which have entailed such a vast amount of sickness and suffering.

The description of the condition of the troops disembarked at Montauk Point, as well as of the Spanish troops just starting for home on their transports, goes to prove the accuracy of the opinions expressed before this campaign as to the deadly character of the climate at this season of the year. It appears that not only was there a vast percentage of sick, but even the men considered well enough to perform their duties showed plainly the debilitating effects of the malarial and infectious diseaes, with which the whole army appears to have been saturated. The country is to be congratulated that this campaign was a brilliantly short and decisive one. Otherwise it is appalling to think what might have been the result.

In view of the great amount of fever, both typhoid and malarial, which has developed not only in this army, but in the reserve forces in the camps in the Southern States, the flood of criticism to which the War Department is subjected is perhaps not unnatural.

There are, however, some reasons for thankfulness which should not be forgotten. For example, we have thus far escaped a serious epidemic of yellow fever. The medical reports thus far received show that the wounded of the army have enjoyed the advantages conferred by the modern aseptic treatment, conditions which have not yet been obtained in any campaign on so large a scale hitherto recorded.

Amongst all the varied and somewhat exuberant mass of complaint which now prevails in the public press, there are undoubtedly some points which may be deemed worthy of critical review. Among these may be mentioned the insufficiency and bad quality of the rations supplied to our soldiers, exhausted by the campaign and wasted by disease, since the surrender

of Santiago and on the transports returning to this country.

The rations issued, it is true, were the regular army rations, but it seems as if provision might have been made to meet the extraordinarily unsanitary conditions of this campaign, and it would have not have been asking too much to have made some special provision for the sick on the transports, even if somewhat hastily dispatched to the seat of war.

If it was not possible to accomplish this by the machinery at present at our command, then the system which at present prevails in our commissary department is in need of a thorough revision to bring it abreast of the exigencies of modern warfare.

It needs but a glance at the record of the various camps in the South where our reserve forces have been stationed to show there has been a great amount of sickness, and if reports are to be believed, there appears to have been a considerable amount of avoidable disease. The increasing number of typhoid fever cases represents a condition which ought not to prevail in well ordered camps arranged with refereuce to modern sanitary conditions. Much of this sickness has been undoubtedly due to the crude state of discipline which has obtained in a hastily organized volunteer army. The fact that in certain regiments the morbidity has been kept as low as three to four per cent., while one-quarter to one-third of the total force of other regiments quartered in the same camp under exactly similar conditions were on the sick list, shows conclusively that the rigid enforcement of sanitary regulations, if achieved by all regimental and company commanders as successfully as by a few, would have prevented a vast amount of disease. The hasty development of a large volunteer force, together with a liberal infusion of politics into the appointment of officers, may in a measure account for the somewhat amateur basis on which parts of this campaign have been conducted. The failure to distribute medical supplies may be noted as an example of mismanagement probably resulting from this cause.

No doubt the many graphic reports of the condition of our brave soldiers as published in the papers are harrowing in the extreme, but we must remember that time will probably modify our criticisms, and when investigation brings out the facts, the public will be disposed to take a more lenient view of the conditions.

Let there be as thorough an investigation of the conduct of the war as is essential to the future usefulness of our army in all its departments, but do not dim the glory of a brilliant campaign with unreasonable and bitter complaint.

It is needless to say that we feel as keenly as any one the terrible loss of life which this campaign has involved. We feel sure that when calmer views prevail the public will see that much sickness and suffering was unavoidable in such a campaign as we have conducted.

As time progresses it is pleasant to note the fact that evidence to the effect that the medical department of the army has done noble work in the face of the recent appalling emergencies due in part to causes unavoidable, and in part to mismanagement in other departments, continues to accumulate and that the stand taken in our recent editorial, that the medical department was being unjustly blamed for matters beyond its control, is being amply justified.

The testimony of unprejudiced observers to the work done by the army medical department is deservedly complimentary. The Honorable Sherman Hoar, who has been looking after the Massachusetts Volunteers in the southern hospitals as the agent of the Volunteer Aid Association has had an excellent opportunity to observe the work of the medical department of the Army.

He said in a dispatch to the *Boston Transcript:* "In fact the medical department of the army, though overworked, is doing splendid service for our men wherever I have been. Every carefully considered suggestion is quickly received and acted on, and the malignant criticism too often seen is for the most part undeserved. Mistakes have been made, undoubtedly, but every effort possible is being made to prevent their repetition. I send this in justice to the medical department, who, from the surgeon-general down, are doing an indefatigable and valuable work in an emergency which few can appreciate unless they have been in touch with it, as I have been for the last two months. The War Department," said he, "is doing all in its power to take care of the sick."

THE CONDITION OF THE TROOPS STILL AT SANTIAGO.

Dr. E. G. Brackett, of Boston, under the auspices of the Volunteer Aid Association, has been engaged in the distribution of supplies in Santiago, with the help of General Wood, the present military governor. In a letter to Secretary Hayes of the Association, which has recently been published, Dr. Brackett gives some interesting information as to the conditions in Santiago, which must be met. Among other things, he states that the sickness prevailing among the troops could in great part be prevented by a proper quantity of the right kind of food and medicine.

He says: "The most urgent need seems to be for the simple forms of foods. The fever, which is extremely prevalent and severe, leaves the men in a condition in which the stomach refuses anything but the simplest of light food. At this time they can take Mellin's food, and others of like nature, granum, malted milk, beef peptonoid, powder, etc. There is a need of this which I cannot urge too strongly, and if such can be sent it will be the means of saving many lives. There is also a great need of hospital supplies, particularly disinfectants and medicines. This is general, and their necessity has been urged on me by the authorities to-day. I send you this as a preliminary report. The conditions here defy my description.

The mortality in the city is very high, sixty and above daily, and it is approaching the worst season of the year. The condition of things is pitiful, and were it not for the most admirable work done by General Wood since taking command of the city it would be impossible for one not here to imagine what the condition of the place would have been. I want to enforce on you how much our men need these things. When you see them, particularly the officers, come to you and beg for these foods, etc., not for themselves, but for the others, it is too much for the hardest heart, and the supplies I have here are not a drop in the bucket of necessity."

It seems without the bounds of possibility that these demands may not be met and at once by those in authority. If there has been mismanagement on the part of the Commissary Department in the past, there is certainly no reason why it should continue now that the conditions are simplified by the cessation of the war.

MEDICAL NOTES.

A Monument to Dr. Pepper. — A memorial bronze statue is to be erected in Philadelphia to the late Dr. William Pepper.

A Check to the Higher Education of Women. — The movement in favor of the higher education of women in Germany has just received a severe check. At the conference at Wiesbaden of the German Medical Association, numbering over 15,000 members, a motion was unanimously adopted against the admission of women to the study of medicine.

A Correction. — In an editorial on "Hospital Reports," the *Medical News* states that the Johns Hopkins Hospital of Baltimore, the Massachusetts General of Boston and the Presbyterian of New York, have set the example in publishing reports. This is a mistake, so far as the Massachusetts General is concerned. The only hospital in Boston to publish such reports is the Boston City Hospital, not the Massachusetts General.

The Water at Sternberg Hospital. — Advices lately received from Sternberg Hospital at Chickamauga are to the effect that the water supply is infected with typhoid fever, and there are no proper facilities for boiling it. There are now nearly 400 patients at this hospital camp, a fact which gives abundant testimony to the wisdom of removing the regiments previously at Chickamauga to other encampments.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, August 24, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 27, scarlet fever 4, measles 9, typhoid fever 25.

The Hospital Ship "Bay State." — The hospital ship *Bay State* is now at Santiago, and a large amount of supplies have been landed and distributed for the benefit of the sick remaining there. The *Bay State* is expected to sail this week for Montauk Point with a full list of sick soldiers, and probably is already under way.

Suicide at Thirteen. — It is reported that a boy of thirteen has deliberately committed suicide by hanging in Connecticut, as the result of punishment inflicted for neglect of work. The occurrence is of interest in connection with Ireland's researches on "Suicide in Children" recently alluded to in the Journal.

Arrival of the Sick Soldiers in Boston. — The steamer *Olivette* arrived at Boston on August 23d, with 200 sick and convalescent soldiers on board, 60 of whom were taken to the Boston City Hospital, 48 to the Massachusetts General, and the rest to the Carney, the Marine Hospital at Chelsea, and other institutions. The landing and transportation to the hospitals were rapidly and comfortably accomplished, and a visit to the men at the City Hospital August 24th, 24 hours after their arrival, showed that in many cases good care, food and nursing had already resulted in improvement. Falling temperatures were the rule, and enormous appetites pointed plainly to the part which lack of proper food had played in bringing the men to their present condition. Only a small proportion of these men were members of the Massachusetts Volunteer Regiments. There were many regulars and volunteers from all parts of the West and South.

NEW YORK.

Death of Dr. Otterson. — Dr. William Carter Otterson, of Brooklyn, died at his summer residence at Long Branch, N. J., on August 17th, at the age of seventy. He was born on Long Island, and was graduated from the College of Physicians and Surgeons, New York. He had practised for twenty-five years in Brooklyn.

Death of Dr. Owen J. Ward. — Dr. Owen J. Ward, an old and well-known practitioner in the southeastern district of the city, died on August 17th, at the age of fifty-eight. He was graduated from the Medical Department of the University of the City of New York in 1865, and afterwards served as house-surgeon at St. Vincent's Hospital. He was visiting-surgeon at Gouverneur Hospital from its opening up to the time of his death.

A Hospital on Bedloe's Island. — The Government has decided to establish a military hospital on Bedloe's Island, in the harbor. The buildings standing on a large space of ground to the west of the colossal statue of Liberty are to be utilized for this purpose, and Lieutenant-Colonel J. Morris Brown, in charge of the medical supply bureau at the United States Army Building, has been ordered to have one hundred cots in readiness for occupancy there.

DEATH OF AN ARMY SURGEON FROM TYPHOID.—Among those who died on board the United States hospital ship *Relief*, which arrived on August 19th, from Porto Rico, was Surgeon-Major Lawrence S. Smith, of the First Regiment, Pennsylvania Volunteers. His death was due to typhoid fever, which he contracted in attendance upon the men of his command. Dr. Torney and his corps of assistants on the *Relief* were ably assisted in their arduous duties during the voyage by Lieutenant-Colonel Nicholas Senn, of the Volunteer Medical Service, who was a passenger and accompanied from Porto Rico by Dr. R. Tomatsari, a surgeon of the Japanese Navy.

Miscellany.

THE EDINBURGH MEETING AND MEDICAL WOMEN.

TIME changes all things, and in this respect it is not a little remarkable to note, as the *Medical Press and Circular* remarks, the progress of medical women in the British Medical Association. A few years ago, at one of the annual meetings, the proposal to admit women to the membership of the Association was rejected with scorn. But the restriction was afterwards rescinded, and since then a medical woman has held the office of president of one of the Branches. At Edinburgh a further proof was afforded of the progress of medical women. A special dinner was organized of those attending the meeting, at which forty-two were present, and of their number all save three were members of the British Medical Association. Mrs. Garrett Anderson, M.D., who was one of the speakers, said that all was not yet won, for medical women had still something to gain before they could be regarded as being upon an absolute equality with medical men. The occasion and place of this special convivial meeting was a fitting one, inasmuch as it was in Edinburgh that the battle in this country of medical education for women was fought and won.

This is of interest in connection with the recent position taken by the German physicians, who in a spirit of renewed conservatism have filed definite objections to the admission of women to medical practice. There can be absolutely no question that women have entered the profession to stay, and their work certainly justifies their claim to recognition.

DYSENTERY AND "DEAD ENDS."

AN interesting and instructive outbreak of dysentery has recently occurred among the inmates of the Hebrew Orphan Asylum at Amsterdam Avenue and 136th Street, New York City. There were nearly 150 cases of illness, with five deaths, and it was for a time very difficult to fix upon the cause of the epidemic. The asylum occupies a spacious and commodious modern building, and its location is one of the finest in the city. It stands upon one of the highest points on Manhattan Island, on a bluff facing eastward which overlooks the Harlem district, with the land sloping downward from it in each of the other three directions, and surrounded by ample pleasure-grounds. During the fourteen years that the institution has been located at its present site it has cared for almost seven thousand children, and during this time, up to the recent outbreak, there have been but five deaths among them from natural causes.

A careful investigation by the Board of Health has now shown that the cause of the trouble was the drinking of Croton water which had become stagnant in pipes known as "dead ends"; the water being used unfiltered and unboiled. The name "dead ends" is given to cul-de-sacs of the city's water pipes that terminate in locations where population is sparse or where abutments on the river-front forbid the running of a pipe to connect the dead ends and thus make the water supply continuous. In his report to the sanitary superintendent, Dr. Edward W. Martin, Chief Inspector, states: "It would appear that the water is drawn near to or at a dead end, with the result that it contains at times a very large proportion of organic matter in suspension and solution; and, while the material is entirely of vegetable origin and non-pathogenic in character, yet it is present in sufficient quantities to render the water unfit for domestic uses unless filtered. It is necessary, therefore, to have the dead ends blown off at such frequent intervals as may be necessary to cause the water to be suitable for drinking purposes." In conclusion, he recommends that the Department of Water Supply be requested to either cause the dead ends to be blown off when necessary, or, better still, to so arrange the connections with the supply mains as to do away with the dead ends. The Water Department immediately took action in the matter, and Commissioner Dalton, the head of the department, announces that he has ordered the blowing-off process kept up during the summer and that he intends to have the dead ends abolished wherever possible. According to Chief Engineer Birdsall, there are about two hundred of these dead ends in the Boroughs of Manhattan and the Bronx.

In the meanwhile the most active measures have been taken for the welfare of the children of the asylum, the sick ones having been removed to the sanitarium of the institution at Rockaway Beach, and the well ones to an additional seashore sanitarium rented temporarily.

METEOROLOGICAL RECORD

For the week ending August 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....7	29.92	73	87	66	61	70	66	W.	S.W.	12	10	F.	O.	
M....8	29.84	83	91	72	82	78	80	W.	S.W.	5	9	O.	R.	.13
T....9	29.84	76	82	71	86	70	78	W.	W.	8	8	O.	O.	.03
W...10	29.96	69	79	63	77	58	68	W.	N.E.	4	10	O.	R.	.18
T....11	29.91	64	67	62	93	97	94	N.E.	N.E.	12	8	O.	R.	1.97
F....12	30.08	67	73	65	88	88	88	W.	S.	7	10	O.	O.	T.
S....13	30.09	73	81	65	87	69	78	S.W.	N.W.	12	8	O.	O.	.39

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thunderstorm; M., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 13, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Whooping-cough.
New York	3,438,899	1522	511	25.02	7.20	20.52	.78	1.50
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	443	164	20.24	11.96	15.54	2.99	.69
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	194	97	9.36	9.88	2.60	3.12	1.04
Boston	517,732	283	156	30.80	4.55	28.00	1.05	—
Cincinnati	405,000	79	—	12.60	7.56	9.82	1.26	2.52
Cleveland	360,000	—	—	—	—	—	—	—
Pittsburg	225,000	104	73	34.92	10.67	20.13	.97	1.94
Washington	277,000	96	33	10.40	17.68	4.16	1.04	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	58	28	12.04	12.04	—	—	5.16
Nashville	87,754	27	12	11.10	14.80	7.40	3.70	—
Charleston	65,165	36	10	25.74	8.58	17.16	8.58	—
Worcester	105,050	31	20	58.14	6.46	38.14	—	—
Fall River	98,849	51	33	43.22	9.80	39.20	1.96	1.96
Lowell	87,793	51	26	39.20	3.92	37.24	1.96	—
Cambridge	93,812	40	24	45.00	17.50	42.50	—	—
Lynn	65,220	—	—	—	—	—	—	—
New Bedford	62,416	27	24	70.30	—	70.30	—	—
Somerville	57,977	25	12	52.00	4.00	44.00	—	—
Lawrence	55,510	28	14	35.71	10.71	35.71	—	—
Worcester	105,050	31	20	58.14	6.46	58.14	—	—
Springfield	54,790	28	16	42.84	—	42.84	—	—
Holyoke	42,364	22	13	45.45	—	41.50	—	—
Salem	38,062	15	9	59.95	—	46.66	—	13.33
Brockton	39,353	7	1	—	—	—	—	—
Malden	32,891	15	11	39.99	—	39.99	—	—
Chelsea	32,716	21	13	—	4.76	—	—	—
Haverhill	31,606	13	6	30.76	7.69	15 38	7.69	7.69
Gloucester	29,715	—	—	—	—	—	—	—
Newton	29,200	—	—	—	—	—	—	—
Fitchburg	28,392	10	9	70.00	10.00	60.00	—	10.00
Taunton	27,812	12	5	41.65	16.66	33.33	—	—
Quincy	22,562	5	3	60.00	—	60.00	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	5	2	60.00	—	60.00	—	—
Everett	21,578	—	—	—	—	—	—	—
North Adams	19,135	6	5	16.66	—	16.66	—	—
Chicopee	17,368	9	5	66.66	—	55.55	11.11	—
Medford	15,832	4	3	50.00	—	50.00	—	—
Newburyport	14,794	7	0	—	—	—	—	—
Melrose	11,968	4	2	25.00	—	25.00	—	—

Deaths reported 3,286: under five years of age 1,641; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 876, consumption 280, acute lung diseases 156, diarrheal diseases 722, typhoid fever 46, whooping-cough 45, diphtheria and croup 32, cerebro-spinal meningitis 16, measles 9, scarlet fever 5.

From diphtheria and croup New York 22, Baltimore 4, Philadelphia 3, Washington 2, Boston 1. From cerebro-spinal meningitis New York 7, Washington and Somerville 2 each, Philadelphia, Boston, Cambridge, Holyoke and Westfield 1 each. From measles New York 4, Boston 3, Baltimore, Washington and Providence 1 each. From scarlet fever New York 3, Boston and Pittsburg 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending August 6th, the death-rate was 18.3. Deaths reported 3,932; acute diseases of the respiratory organs (London) 174, diarrhea 574, whooping-cough 71, diphtheria 52, measles 45, fever 29, scarlet fever 23.

The death-rates ranged from 10.2 in Brighton to 25.6 in Salford; Birmingham 20.0, Bolton 14.9, Croydon 14.7, Gateshead 14.1, Hull 12.0, Leeds 19.9, Liverpool 24.4, Manchester 21.3, Nottingham 15.7, Sheffield 22.4, West Ham 16.4.

SOCIETY NOTICE.

NEW YORK STATE MEDICAL ASSOCIATION.— The regular annual meeting of the New York State Medical Association will be held at 64 Madison Avenue, New York City, on October 18, 19, and 20, 1898. The following is the preliminary programme:

A Practical Demonstration in the Reduction of Infantile Mortality, by Dr. E. F. Brush, of Mount Vernon; The Pneumogastric Nerve in the Production of Stomach Disease, by Dr. Julius Pohlman, of Buffalo; The Coccyx, by Dr. J. E. Walker, of Hornellsville; Drugs *versus* Cardiac Insufficiency, by Dr. O. T. Osborne, of New Haven; The Passing of Alcohol, by Dr. J. M. Farrington, of Binghamton; New Method of Amputation at the Knee-Joint Applicable in cases of Senile Gangrene of the Foot, by Dr. Stephen Smith, of New York; Anthropological Rambles in the Orient, especially in the Island of Java, profusely illustrated with stereopticon views, by Dr. H. Ernst Schmid, of White Plains; Dental Pathology in its Relationship to General Health, by Dr. Dwight L. Hubbard, of New York; Subnormal Temperature, by Dr. Leroy J. Brooks, of Norwich; Ancient and Modern Animal Products used as Medicines, by Dr. T. J. Acker, of Croton-on-Hudson; The Treatment of Cases of Pulmonary Tuberculosis that cannot go away from Home, by Dr. Delancey Rochester, of Buffalo; Some Observations of General Interest Regarding the Course and Management of Cataract, by Dr. J. H. Woodward, of New York; Technic and Use of Saline Infusion, by Dr. Thomas F. Reilly, of New York; What to Do to be Saved, being the Conclusion of the Inquiry into the abuse of Medical Charity, by Dr. Thomas J. Hillis of New York; True and False Medical and other Charities, by Dr. Wickes Washburn, of New York; a paper by Dr. Charles Phelps, of New York, title not yet announced; Genital Neuralgia and the Genito-reflex Pains, by Dr. F. J. Hammond, of New York; Lantern Slide Exhibition, by Dr. S. Alexander, of New York; A Case of Attempted Obliteration of the Deformity in Pott's Disease, by Dr. Charles Alling Tuttle, of New Haven; Notes on Neuralgic Affections of the Head, by Dr. Gustavus Eliot, of New Haven; The use of Catgut Sutures in Ventrofixation of the Uterus, by Dr. J. E. Janvrin, of New York; Traumatic Tetanus — Report of a Case Following an Attempted Operation, Treatment, etc., by Dr. Z. J. Lusk, of Warsaw; Some Thoughts on the Rational Treatment of Diseases, by Dr. Chauncy P. Biggs, of Ithaca; Senility, by Dr. F. W. Higgins, of Cortland; A Case of Extrauterine Pregnancy Operated upon at Term, by Dr. Ely Van De Warker, of Syracuse; Memoranda, by Dr. H. D. Didama of Syracuse; Diagnosis and Surgical Treatment of Renal Calculus, by Dr. N. Jacobson, of Syracuse; Eye Lesions in some Diseases of the Kidney, by Dr. H. S. Oppenheimer, of New York; Insanity Following Surgical Operations, by W. D. Granger, of Bronxville; Dermoid Cysts of the Ovary, by Dr. C. E. Fritts, of Hudson; The Operative Cure of Inguinal Hernia in Men, by Dr. E. D. Ferguson, of Troy; Urethral Stricture, by Dr. J. W. S. Gouley, of New York; A Discussion on Intestinal Obstruction, comprising the following papers: Introduction, by Dr. Parker Syms, of New York; The Causes of Acute Intestinal Obstruction with a Description of their Mechanism, by Dr. E. D. Ferguson; The Causes of Chronic Intestinal Obstruction with a Description of their Mechanism, by Dr. J. D. Bryant of New York; Intestinal Obstruction due to Impaction of Feces, Gallstones, Foreign Bodies, etc., by Dr. J. W. S. Gouley; "The Diagnosis and Indications for Treatment of Acute Intestinal Obstruction," by Dr. J. D. Bushmore, of Brooklyn; "The Diagnosis and Indications for Treatment of Chronic Intestinal Obstruction, by Dr. Leroy J. Brooks; Intestinal Obstruction due to Intussusception and Volvulus, by Dr. John F. Erdmann, of New York; and the Technic of Operative Treatment of Intestinal Obstruction, by Dr. Frederick Holme Wiggin, of New York.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING AUGUST 11, 1898.

McADAM, W. R., assistant surgeon. To report at Louisville, Ky., for duty and assignment to quarters. August 6, 1898.

GWYN, M. H., assistant surgeon. To report at New York, N. Y., for duty and assignment to quarters. August 6, 1898.

HOBBY, W. C., assistant surgeon. To proceed to Cape Charles Quarantine, Fort Monroe, Va., for duty and assignment to quarters. August 9, 1898.

RECENT DEATHS.

JAN JOSEPH BASTIANUS VERRMYNE, M.D., M.M.S.S., formerly of New Bedford, died in Francestown, N. H., August 16, 1898, aged sixty-three years.

C. B. BELT, M.D., M.M.S.S., of South Boston, died on August 23, 1898, after a brief illness from septicemia. He was born in Hartford, Ct., September 16, 1847, graduated at the Harvard Medical School, in 1871 and served as house officer at City Hospital, where he remained for a year. He was a member of the staff of the Carney Hospital. He was married, and his widow, three sons and a daughter survive.

BOOKS AND PAMPHLETS RECEIVED.

Tubercular Peritonitis. By F. G. Finley, M.D., Assistant Professor of Medicine, and Associate Professor of Clinical Medicine, McGill University; Attending Physician, Montreal General Hospital. Reprint. 1898.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By Patrick Manson, M.D., LL.D. (Aberd.), London. One volume of 625 pages, 12 mo, illustrated by 88 wood-engravings and two colored plates. New York: William Wood & Co. 1898.

Ovariotomy and Abdominal Surgery. By Harrison Cripps, F.R.C.S., Operator for Abdominal Sections to the ward for Diseases of Women in St. Bartholomew's Hospital, etc. London: J. & A. Churchill. 1898. Philadelphia: P. Blakiston, Son & Co.

Lecture.

TALKS ON THE HISTORY OF MEDICINE.[1]

No. II. — Physiology in the Sixteenth Century: Paracelsus and Bruno.

BY DAVID HUNT, M.D., BOSTON.

In our first talk we attempted to show that during all the long-drawn barbarism of the Middle Ages there was but little in the way of literature or school to indicate the existence of a distinct medical body. Whatever there was of medical thought and discipline is to be sought as an integral part of some of the various philosophical systems. These relations hold true during the fifteenth century, but the old divisions have been broken up; in literature, in art, in philosophy, new movements are gathering headway.

Without attempting, at present, to trace these general features of the period, I wish to call your attention to a somewhat detailed account of one man of whom we have heard but little, but whose life and thought gather in a wonderful manner the scattered, frayed-out doctrines of the Middle Ages. John Krebs, or von Cusa, Cardinal and Bishop of Brixen, was born in 1401. After his school days at Deventer he studied at the University of Padua. He was particularly devoted to mathematics and science, and it is fair to presume that this bent was the cause of his selecting Padua for his university studies. Padua at this time was the Mecca of the physicians of northern and eastern Italy; it was the stronghold of Averroeism; it was not favored by the clergy, who generally regarded it as a centre of unbelief; it was not favored by the very first partakers of revived Hellenism, for it was distinctly Arabian; in short it was the centre of of all of the hard-headed, materialistic Venetian, as opposed to the more poetic Tuscan or Florentine thought. Cusa, after his graduation, turned his attention to the practice of law, but an unfortunate beginning disgusted him with the profession and he took orders as priest. As was natural he played a prominent part in the liberal reform branch of the Council of Basle, where Cesarini, his professor of mathematics at Padua, was president. Cusa was outspoken at this council; in fact he became very prominent in the party of reform within the church, particularly so upon the question of the supremacy of the councils over the pope. In general he followed the lead of Gerson, chancellor of the University of Paris, of a generation earlier. We allude to the fact chiefly as indicating the sympathies natural between Padua and Paris. At the Council of Basle he was very intimate with Aneas Sylvius, a young man fresh from Siena, with a scandalous tendency in his poetry to exhibit an erotic nature, which later, as Pope Pius II, he deeply mourned. Cusa afterwards went with an embassy to Paris and to Constantinople; he returned from the latter place bringing a number of valuable manuscripts. Here, as you will see, he was something of a pioneer. Later he was sent on a mission to reform the monasteries of Germany and the Netherlands, — he performed his work with great credit. In these active days he had abandoned a good deal of his old liberalism; he no longer denied the supremacy of the pope over councils; all his energy and all his intellectual power was confined within safe channels; he was too honest to become a politician of the church, like Sylvius, but, like many a scholar, he grew very long antennæ, which he needed in his energetic intellectual life, if he were to be preserved from harsh contact with heresy. I believe Thomas Carlyle would have appreciated exquisitely this side of the life of Nicholas von Cusa.

What Cusa thought is most readily exhibited by extracts from the "De Docta Ignorantia," which was his real confession of faith. According to this the "most perfect knowledge attainable can only teach man his ignorance. Man is wise as he knows that he is ignorant. Understanding is related to truth as the polygon to the circle: the more angles the nearer the approach to the circumference; but they never become identical — yet the essence of things is their truth. As we learn things thus imperfectly, the more their differences strike us. The highest likeness, where nothing of difference is distinguishable, is above our comprehension; but we may strive to realize in thinking, something like the condition where differences disappear. Since now the absolute greatest is all, and the absolute smallest cannot be smaller, they are coincident; the absolute greatest is a unity: it contains all; but one as a number cannot be called absolute unity, since numbers *increase*. One cannot be the absolute greatest or least; it can only be the beginning of numbers as smallest and the end as greatest. Our comprehension of number implies the necessity of unity. Now unity is eternal, likeness is eternal, so must their union be eternal and this is the mystery of the threefold unity, as Pythagoras taught. We have, then, the Father, the unity; the Son, the equality or likeness; and the Holy Ghost, the union. We also have the three-one in nature, as the intellect; the knowing, embracing the intelligible, and the act of knowing. Every unity has in it the trinity, the indivisible, the discrete, and the connection between them. The universe is a secondary greatest, not like God, including all things in a universal equality or likeness, but including all things in their separateness, their differentiating qualities, thus constituting not a unity but plurality; it is simply an emanation of the limited greatest from the absolute greatest. The individual object is the universal in particularity, as the peripatetics taught. The universe is also a trinity, not like God, where three distinct personalities are absolutely one, but a trinity consisting of the potentiality of being, the limitation of this potentiality and the union of potentiality and limitation into a real being (*nexus* of both). As Plato thought, the world has a soul which is its universal active principle, consequently the world moves, the stars and the heavens move. The innumerable stars have their inhabitants, those of the sun probably more illuminated and spirited than those of the moon, subjected as they are to lunar influences. The earth has minerals in the place of bone, rivers in the place of blood, vessels and trees in the place of hair. Fire in many ways resembles God, but God is absolutely independent of things. The very highest conception of culture is to elevate the spirit until all contradictions coincide so that God shall appear to us the absolute greatest and absolute smallest."

Whewell notices Cusa as a forerunner of Copernicus (the name is not in the index of authors in the "History of the Inductive Sciences" but the mention will be found on page 261, and in a note, page 523 of the American Edition). The above condensation will show that the statements of Cusa are chiefly metaphys-

[1] A course of four lectures delivered, by invitation, before the Harvard Medical Alumni Association, February, 1868.

ical deductions, although Clemens, a German writer, in comparing Bruno and Cusa, and ascribing to the latter the germ of about all modern thought, publishes a fragment which he found in Cusa's library, giving diagram and text concerning the heliocentric theory, more elaborate probably than Whewell was acquainted with; the date of the "Docta Ignorantia" was 1440.

One of Cusa's first philosophical works was of two books, "De Conjecturis." In this work he develops his ideas of the progression of numbers. One, two, three, and four give together the Denar ten. This as a second unit gives 10, 20, 30, 40, which together make 100, the quadrat of this root; 1,000 is the cube of 10. The cube, however, is an enclosed body and cannot be further potentized; human beings are as the cube and beyond this is no progression. The first is God, the second is intelligence, the third *anima*, the fourth *corpus*. Man is a microcosm; sight is his noblest sense. Higher than this is imagination, since it is not confined to concrete sense. Higher than this is understanding, for this tells us what we cannot imagine, as, for instance, that at the Antipodes man does not fall off into space, since weight strives for the centre (Aristotle). But above this stands intellect, which is related to reason, as the force of unity is related to a finite number.

His work the "Idiotæ" repeats much which we have already given, but in the fourth dialogue, "De Staticis Experimentis," he remarks that a study of difference in weight should lead to a deeper knowledge of things, since God has ordered all things by number, measure and weight. Lighter and airier water is healthier than heavier, earthy water. The weight of blood and urine in man is different in health and disease, in youth and old age; the knowledge of the weight of urine must be more serviceable to physicians than the changing color. The nobler metals are the heavier; the comparison of the weight of the metals in air, water and oil should prove useful. The elements often pass over into one another. If one puts a glass into snow the air thickens to water, and many waters have a stone-making nature; in Hungary there is a water which changes iron to copper; so water is not a simple element but contains other elements in itself. He speaks of weighing the air. A man has one weight holding the breath, another when he has expired: one weight living, another dead. Harmony in bells depends upon their difference in weight, and health is to be conceived of as a harmony of weight, while disease is discord. The different contents of geometrical figures are easily measured by their weight. Astrological questions and signs are not worth the attention of the wise if they lack sufficient basis. Cusa treated of the end of the church and of time, completely in the sense of the mystics. A year of the church is a jubilee year of fifty common years, hence in 1450 the age of the church corresponded to the twenty-ninth year of Christ's life; consequently up to 1700 the church would be persecuted in every way, but then its resurrection and ascension should come. In a tract, "De Beryllo," Cusa treats of the grinding of the beryl, convex and concave, as enabling the eye to perceive objects otherwise invisible. Something in the way he writes makes it appear that opticians then, if of quackish turn, used that name for common glass, as "pebble" has been used in our day; it would be in the nature of a Middle Age guild to do this and to speak of the invention of *frames*, as I believe they did, as the invention of glasses or spectacles, — however, this is a subject of itself.

About a century after Cusa's death was born, at Nola, Giordano Bruno. It seems somewhat strange to-day to consider him in connection with the history of medicine. We must keep in mind the fact that physiology, at least as then considered, was part and parcel of the systems of just such savants; that the school of Padua, of which he was part, presented physiology only through such thinkers as Bruno, Telesius, Campanella, Patritius. In this fact is shown a marked characteristic of the school which really produced Harvey; it held more firmly and for a longer time to the methods of the Middle Ages than any famous school of Europe, and it did so to a great extent because it was a medical school and because medicine, or physiology at least, was thoroughly enveloped in past systems. The date of Bruno's birth is unknown, so also is the date of his joining the Dominicans and becoming priest; in this capacity he was noted as an opponent of Aristotle and he earned much enmity by the eagerness with which he disputed for his ideas. In 1580 he fled his order and his country. He went at first to Geneva, but was too free in spirit for Calvin and Beza. From Geneva he proceeded to Lyons, Toulouse and Paris, where opposition to Aristotle was also waxing. In 1583 he went to London where he was well received by the French ambassador, de Castelman, and where he made the acquaintance and won the warm friendship of Philip Sydney. Upon Sydney's departure to command the English cavalry in the Netherlands, Bruno returned to Paris where he was appointed extraordinary professor of philosophy. From Paris he went to Marburg where he matriculated as doctor of theology; from there to Wittenburg and taught philosophy and mathematics. Upon leaving, two years later, he delivered an oration in which he highly praised Luther, the Protestants and the Germans, but he remained true to his own church. It is needless now, fortunately, to repute the absurd calumny attributing to him a speech in praise of the Devil. From Wittenburg he went to Prague, which he left in 1589 for Brunswick; he taught at Helmstadt but was at Frankfort in 1591, whence he returned to Italy and Padua, where he taught his philosophy. He was too free in his criticisms of church and clergy and was seized by the Inquisition of Venice. In 1598 he was removed to Rome and delivered to the Inquisition there; he was tortured, as was usual, into the requisite amount of contradiction, and burned the 17th of February, 1600.

Bruno's doctrines are sufficiently stated for our purpose in his famous Philosophical Discussions concerning first, "The Cause, the Beginning and the Unity," and second, "Concerning the Eternal All and the Innumerable Worlds." As usual, I can simply condense a few leading characteristics. As to the world, Bruno regarded it as an organism. It has its earthquakes, its diseases; it has its mountains, valleys, coasts and seas, hollows and caves, just as in the animal body we find bones, flesh, vessels and nerves; but as such a living body it can have no geometrical form, cannot be perfectly spherical. The circulation of the elements give origin to periodical winds, tides, etc. He accepts the astronomical discoveries of Copernicus but laments that Copernicus was more mathematician than philospher. Bruno draws attention to the fact that

Cusa had stated the same opinion as that which Copernicus had put forth in his "Docta Ignorantia." As a sum of Bruno's opinions I translate his aphorisms:

(1) Nature is an eternal and indivisible being, (2) which is the instrument of God's providence (3) and works with wisdom, like instinct, provided for it.

(4) And although every thing and each thing is directed to a certain purpose, still it in no manner demands a thoughtful idea or deliberation.

(5) It also is ever advancing from the imperfect to the perfect.

(6) It is absolutely indefatigable.

(7) Nothing of all that which is or has been pertains to Nature by chance.

(8) But everywhere and at all times it develops certain forms and structures from certain necessary relations of germs or seeds.

(9) According to which principles and rules she brings forth all her motions of themselves undetermined, in a constant determined manner, with measured proportion — a manifold effect in a uniform order.

(10) Thus she is a living art and the expression of the power of a rational principle, forming according to eternal laws, not by voluntary election, according to her own essence; not by a foreign material, but by her own inborn material, not only externally, outwardly but inwardly (Acrostismus contra Peripateticos, Paris, 1585).

The fact that Bruno owes much to Cusa is evident. He proclaims it and at the same time his love and admiration for one whom he evidently regards as teacher. This is no deduction of mine; one of the bitterest attacks upon Bruno, by a hide-bound theologian, makes his chief charge against Bruno this very likeness, which, in spite of Bruno's grateful acknowledgments, the man bringing the charge is mean enough to treat as a plagiarism. Without going into details to corroborate the self-evident fact, it may be remarked that the larger part of the work referred to is devoted to the exhibiting this similarity of the two thinkers; the differences noted are unimportant and no direct charge against Bruno's life or doctrines are made. After reading the work carefully I could only wonder why one man, Cusa, was the honored bishop and cardinal and the other the burned heretic, until I thought of the differences in time and the fierce, inquisatorial spirit with which Spain succeeded in inoculating Italy.

In doctrine, then, Bruno and Cusa have many likenesses; in moral aim Bruno was the nobler; in learning Bruno had all the advantage which the century between them could furnish a scholar. As types both are fair products of the Padua of the fifteenth and sixteenth centuries. In both we see that constant attrition has worn the fragments of Plato and Aristotle, of Averroes, the doctrines of the scholastics, the thoughts of Abelard, Anselm, Occam and the rest of the Christian philosophers, and finally the boldest and freest speculations of the mystics, until the elements of which they were composed have become almost indistinguishable. This general result at Padua was aided much by the local efforts of Pomponatius, whose great characteristic, above the marks of schools, was his earnest belief; true, he defended himself to a certain extent by claiming the double character of Christian and philosopher, but he held all the truths of natural religion with a vigor that distinguishes him as a sixteenth-century thinker. Another movement was the growth of Hellenism which the migration of scholars from Constantinople favored. These brought with them many new manuscripts and an entirely new spirit in the study of the ancients, the most prominent of which was perhaps the elevation of taste which made much of the old Arabian matter seem decidedly barbarian. The efforts of Pomponatius and this new feeling for form broke up the old Averroistic Aristotelianism of Padua and led to the formation of an old school of what might be called Averroists, and a new school, named from Alexander of Aphrodisias, the Alexandrists, or Alexandrian Aristotelians.

Under these influences at Padua, scholarly pride consisted in looking directly and critically to original Greek texts, chiefly of Aristotle, just as at Florence the same feeling was manifested for original texts of Plato.

We have seen that this spirit of form did not control the thought of Bruno; no more did it the thought of Tilesius, who had preceded Bruno by nearly fifty years and who as independent thinker did not fail to attack even the prominent doctrines of Aristotle. Without attempting an account of his cosmological ideas, and his views as to warmth and cold as the two effective principles in all things—for all these physiologists thought it necessary to begin with the physiology of the universe — we attempt a short account of some characteristics of the physiology of man as he viewed it: man is differentiated from everything else by his immortal soul, placed in him when he is fully formed; that this psychical part which perceives and moves all parts shall not perish but be perfected by exercise. The animal soul is simply the spirit drawn from the semen; it moves in the nerves and blood and is controlled in its evil tendencies by the soul formed for the body by God; the animal soul, seated in the brain, is accessible to bodily influences but not to air and light; the liver prepares the blood but it is not warm and delicate enough to furnish the waste of the animal spirits in daily life, hence the heart was furnished us; it has movement that it may warm the blood, not in the grosser manner of the liver but by the finer warmth produced by movement. His account of vision is characteristic; he furnishes a good account of the anatomy of the eye, but infers that light carries color to the eye, the crystalline lens collects it in a manner that renders it easy for the animal spirits seated in the vitreous, and in intimate relation through the optic nerve with the spirits dwelling in the brain, to take cognizance of the form, color and size of objects. Patritius, with perhaps more classical learning than Tilesius, works the ancients over again in forming a new theory of the physiology of the universe and did not enter so deeply into question of human physiology as Tilesius, who was in more than one respect his teacher. Campanella, the last of this school which we need consider, in the latter half of the sixteenth century, while adding many details, is the same in method; he accepts many of the ideas of Tilesius but emphasizes power, wisdom and love as primalities or essentials. He says the newer physiologists, Paracelsus and his followers, err in making salt, sulphur and mercury principles, as they are mixed elements which fire changes into air. In regard to the soul, he says that, according to Tilesius's ideas, it would simply constitute an angel; the soul learns of the state of the body by the corporal spirit; it rules the body as the captain rules the ship. When the soul re

tires for nourishment from the corporal spirit into the larger cavities of the brain, we call the condition sleep. The finest divisions of blood current are white and nourish vessels and nerves; there are fatal seven and nine year periods, determined by heavenly influences, peculiar to each individual. Childhood corresponds to the moon, children are hence plump and blonde; youth to Mercury; a little older, Venus rules, and in manhood the sun; in first half of old age Jupiter, in latter half of old age, the wasted spirits leave the soul without support and it returns to God, the corporal spirit to the ether, and the body to the earth.

The body as the residence of the soul has three kinds of organs: first, organs of power; second, organs of sensations and perceptions, and third, organs of appetite. By the first class the body is upheld by bones, the control of which is in nerve-spirit enclosed in the spinal canal; this power is obliged to withstand the tendency of weight, which is the striving of everything to the middle point of its system. It is needless to attempt more detail, sufficient to say that he follows Telesius in many respects; he gives about the same account of the function of vision but with no thought of plagiarism. As long as they all worked in the orthodox manner they all formed their cosmologies to a great extent from the ancients, that is, from sources common to all, and as they spun their speculations from within, the acceptance of them by another was something of personal flattery; an outsider, one not in the circle of their school, they might accuse of copying, as Bruno accused Paracelsus of copying from Raymond Lully; or they might leave him unnoticed, as they generally left Servetus, or as they left the grand work of Vesalius and his successors. What a lesson the epoch furnishes! The wisest, the noblest, the most learned of men, searching the universe, and universal literature, and blind to the truth which the father of anatomy was establishing daily in their midst!

We have seen in our sketch of physiology as it existed at Padua, that each writer in his ideal system laid considerable stress, as did the ancients, upon the manner of formation, the nutrition, and the mode of action of the "vital spirits" and of their relation to the soul of man. In our first talk we saw that this subject was a leading one with every philosopher in treating that branch of his subject which we call physiology. One medical man started from an entirely new point of view in his attempt to master this subject; not only did the result which he attained make his name immortal, but his very selection of his standpoint is a type of a great movement which marks his time,— we refer to the Biblical origin of the idea of Servetus, that "the soul is in the blood, that the soul is blood." [2]

Servētus was an energetic medical student; his teachers in Paris mention him as on a par with Vesalius; it was as a medical man that he developed the ideas which, embodied in the "Christianismi Restitutio," brought him into contact with Calvin and caused his death. The facts of his theological contest with the bigot of Geneva, that the title of his book is theological, that it was generally destroyed, have obscured his medical reputation, but in the catalogue of the library of the Surgeon-General's office a notice of his medical writings will be found. Is it any wonder that a physiologist of the kind we have attempted to describe as types of sixteenth-century teachers in this department should be forgotten as a medical man? Servetus was one of the class; as brilliant as he was as a medical student, he is fairly to be cited as an example of the product of the school of Paris in the time of Guinterius and Sylvius, a school and a period which some have attempted to make the real source of the greatness of Vesalius. The bent of Servetus led him to study the Bible as a source of knowledge; he gave a literal interpretation to those teachings of Moses which we have cited. He was an ardent anatomist. He conceived a new thought, not those great cells of the brain so often quoted by the physiologists of his time as the abodes of the vital spirits and the seat of the soul were its real dwelling-place. The divinely inspired Moses had told the secret, and careless man, forgetting his words, had lost it. It is the choroid plexus, that wonderful vascular network in such intimate relation with the great cavities of the brain that fulfils all the scientific and rational demands, as science of the past has described them, and also fulfils the conditions according to the divinely inspired statement of Holy Writ. The conception was overpowering; it contained a vindication, a restitution of Christianism as against the philosophers; it also contained the germ of a discovery that fired his genius and his Spanish soul to a far greater heat. It led him to a thorough study of the liver, the heart and the lungs as spirit-forming, soul-nourishing parts, and led him to the discovery of the pulmonary circulation. Alas! it led him farther, it dazzled him also, this new light. The way from the brain to the parts was by the nerves, and these he made conductors of life and continuations of the blood-vessels.

In this connection, time permits us only to call attention to the source of the ideas of Servetus; as we have said, the Bible, rather than the writings of the ancients, was his authority. In this sense Servetus is separated, to a great extent, from those physiologists of Padua whose names we have mentioned; it was not neo-Hellenism which inspired him, but a lofty mysticism. It was the same with the most influential physiologist of this epoch, Paracelsus. Bruno received something of his spirit from Cusa, as he himself acknowledges; all, however, had this trait in common: their physiology, like that of the ancients, was literally a portion of their cosmology.

Paracelsus was born at Einsiedeln in 1493. His father was a physician of respectable connections. After having been prepared by his father and by Bishops Paumgartner and Schacht, in his sixteenth year he attended the university of Basle, and later he studied alchemy under the famous Abbot Trithemius and in the labratory of the Fuggers. A very important part of his education, like that of many scholars of his time, was gained in his travels, which extended over all Europe. Wherever he went he sought a knowledge of nature, particularly of everything related to chemistry. Two years after his return to Germany, in the thirty-fourth year of his life, he was appointed professor at Basle, and, full of confidence in the matter which he had to communicate, he delivered his lectures in German; that this was a well-considered part of his ideas of reform his writings testify. At the end of a stormy period in Basle, where his medical reputation grew extensively, he began his wanderings again until in 1541 he died at Salzburg.

It is difficult to form an exact idea of the details

[2] In our version the words are not the same as in other versions; the idea is in one text or another common in the Old Testament.

of the knowledge of this great medical man. The researches of Mook, Ferguson, Schubert and Sudhaff have done much, during the last twenty years, towards establishing a correct list of his works and there is a pretty general concurrence that Huser's edition furnishes on the whole the best text; but all writers with whom I am acquainted leave us wholly unsatisfied as to the real source of much that passes under his name. I believe that about all his general ideas of the world and man's place in it, as well as many of his peculiar physiological ideas, were obtained from Nicholas von Cusa. Cusa died a generation, at least, before Paracelsus was born, but the memory of the great leader of reform at the council of Basle was not a name likely to be forgotten in that neighborhood. As to these general relations, it is significant that Paracelsus remained in the church and it is altogether probable that in his family and at school, he had been, in his early years, surrounded by those who had made the life and doctrines of Cusa the subject of much comment. Outside of his reform-work in Germany and the Netherlands, Cusa had been prominent in aiding Sylvius's (Pope Pius) attempt at a new crusade against the Turks, and all familiar with Paracelsus's writings know that this Turkish question, then one of burning interest to Europe, was prominent in his thoughts. But beyond all these general possibilities are the facts of the correspondence of his cosmology with that of Cusa. There is no need of recapitulating the statement of Cusa's views, as we have endeavored to give them; the ideas will be found repeated, sometimes under a peculiar phraseolgy by Paracelsus. Outside of his mention of salt, sulphur and mercury as elements, soluble, inflammable and volatile, we find most of his general ideas as Cusa thought them. Of course many likenesses might have been due to their study of common sources, but here their lives were wholly unlike. Cusa studied the books and systems; Paracelsus, as he so often boasts, studied nature. In many details their views are alike; their opinion of urinoscopy, for instance, were uncommon but peculiar to each. Paracelsus added much of his fanciful chemistry to the subject, but he derided the common custom as Cusa did. In relation to astrology there existed also a striking analogy; both despised astrology, both were greatly given to what might be called mystic astronomy. In their comparisons of the diseases of man with the disorders of the universe they agree. The ideas of Paracelsus concerning "tartaric" diseases seem an extension of those of Cusa as expressed in "De Staticis Experimentis." In the great questions of life, death and disease there is a striking coincidence. Paracelsus's "Yliaster" was Cusa's great, absolute unity; in creation Paracelsus's "Ideas "was the active principle and the material of life, emanations of the "Yliaster" Paracelsus and Cusa each showing a like mingling of the views of Plato and Aristotle. In the "Ideas" Parcelsus conceived of parts soluble (salt), parts inflammable (sulphur) and parts volatile (mercury), and the four elements which these parts formed. All things were potentially in the "Ideas" as the statue is in the marble (a simile of Cusa's). All that is new here is Paracelsus's new chemical inventions, and he says the four elements air, water, fire and earth are born of the three chemical elements; all the elements have "Yliaster" or their original spirit with both. All life has a substratum of mucus, which, putrefied by warmth and moisture, gives origin to new life, a modified Platonism also found in Cusa.

The idea of the growth of the inorganic elements, that they were subject to the laws of organized beings, was common to both; Paracelsus developed all his chemical knowledge on this line. The view that all genesis was but a metamorphosis, a progressive development, was common to both. Disease Paracelsus expressly treats as a lack of harmony of the three elements, an idea which Cusa had expressed. Paracelsus undoubtedly had a passion for observation; there is no doubt of the same spirit in Cardanus; both enjoyed huge reputations as physicians (recall Cardanus's trip to England and Scotland; he was the shrewder practitioner). Divesting ourselves of professional feelings, proper now, impossible then, we may well conceive that in contrast with the mechanical routine of the day they both achieved results which were remarkable. The enemies of both have written the proofs of this statement.

The passion which Paracelsus carried into his work of observation was a trait of his nature that made him, even in his efforts at induction, a complete slave to the system of deductions by which he formed his cosmology. Full of the imagination apt to play so useful a part with the greatest philosophers when properly harnessed, he excited it by the passion which he threw into all his studies of nature; this is shown in his serious charge that Galen "poetized." Conscious only of his struggles, his wanderings, his constant search for objective knowledge, he imagined himself altogether the observer — "Know thyself."

The time has long passed when we can dismiss a character like this with a sneer; the danger is now the other extreme. The German writers, who have vindicated his fame with national thoroughness, have made him the peculiar product of the great movement connected with the Renascence, in short, they have isolated him, as all hero worshippers do their idol. Let us consider five of the chief events of the epoch in illustration of our statement:

First, as to the fall of Constantinople and the consequent influx of scholars and precious ancient manuscripts into Italy: the movement began long before the fall of the city. Cusa brought valuable manuscripts from Constantinople on his return from his embassy; in return for the service Pope Nicholas V sent him a newly discovered manuscript of Archimedes. Under this pope more learned manuscripts, we are told, were translated in five years than in the previous five centuries.

Naturally the next consideration is the discovery of printing with movable type. Of course the activity of the translators and the consequent activity of the writers made a demand which the press answered, but it was not devoted wholly to noble uses. It was immediately used to answer popular demands, as was natural, and this in the state of public opinion led to the production of a vast mass of trash; it was abused as well as used.

Third, as to the overturning of the ancients: the process had been in operation for centuries. The later scholastics, with the help of the Arabian philosophy, aided, as we have said, by mysticism, had helped the growth of the thought of the Middle Ages from childishness to manhood; but the history of some sixteenth-century physiologists show that methods were not improved, and that systems followed the revolution as freely as in earlier ages.

Fourth, the maritime discoveries were commercially

wonderful and they brought stores of new knowledge and material to our profession, especially botanical; they were not as startling in their effect upon philosophy as popular history has generally led readers to suppose. All that Columbus found supported philosophical deductions common among the learned for centuries; he himself mentioned Averroes as one of the philosophers who led his thought toward the attempt to discover "new worlds."

Finally, as to the Reformation: Cusa's life again shows that the movement was in full swing within the Church for more than a century before the stupidity of some of the popes causing the misfortunes of Italy, abusing all decent Christian sentiment of Europe, and allying themselves with narrow Spanish fanaticism brought the movement to a crisis.

There is no satisfaction in attempting to account for Paracelsus by any of these movements; the influences were too general to give us any conception of his special thought. The hero worshipper loves to create a man of power who causes all that follows him, or who is a child of the gods for whom all great movements were especially ordered. Artistic use of great generalities is the powder for their rhetorical pyrotechnics. They resent the analysis which proves that the sulphur, the nitre, the charcoal were slow productions of nature and art which man was long in learning to combine. Closer study generally brings the hero into the human ranks, and, if he is real, respect and veneration is only made warmer and deeper; debate on uncertain points is rendered less extreme; an atmosphere better fitted for existence of truth and justice is created. Partisan spirit, fanaticism, sectarianism, dogmatism are the only sufferers and in their present flourishing condition we may spare our compassion.

Paracelsus is often blamed for his contempt of the ancients; we must endeavor to realize the spirit of the reformer of his time. Savonarola felt and spoke in much the same manner when he said, "The philosophers are in hell, and an old woman knows more of saving faith than Plato." In spite of all the singularity and originality which characterize Paracelsus, in spite of his boasted independence, he, like the other sixteenth-century physiologists, was confined in a system of cosmology which probably he adopted from Cusa. He was more original and independent in his relations to chemistry than to medicine, but on every side were the bars of his prison; all his attempts at original observation, all his inductions were rigidly shaped and adjusted according to the metaphysical ideas in which he had enveloped himself. His struggles for freedom were more energetic, his flights bolder than those of most of the sixteenth-century physiologists, even judging him by the standard of the most advanced school of Padua. In this respect all were in a common plight, — the rule of the systems had existed from the beginning and nothing of the strength of the rule was abated at the Renascence. The birds might exhibit more restlessness, they might sing louder and sweeter, but they were as safely caged as in the ancient days. We may pity them as we see them suffer their self-inflicted injuries, in beating against the bars; we may admire them as we perceive the energy of their attempts for freedom, but we cannot find among them, not even in Paracelsus, the "founder of modern physiology." Browning was right in his immortal poem: Paracelsus was ever aspiring; true to his German nature, he honestly and obstinately clung to his ideal, but he lacked in power for realising and organising it.

How modern medicine was made possible, how physiology was established, will be the chief topic in our next talk.

Original Articles.

CONGENITAL DEFECT OF THE FIBULA.

BY F. J. COTTON, M.D., AND A. L. CHUTE, M.D.

(Concluded from No. 8, p. 192.)

TEMESVARY, six years later, reiterated these views, and the theory now usually accepted, that of amniotic pressure and adhesions, though suggested by Dareste in 1882, seems to have been overlooked by most authors until 1892, when Sperling, in a masterly paper, reviewed the whole subject and challenged all evidence supposed to prove that these so-called intra-uterine fractures were fractures at all, and pointing out the possible explanation of their causation by abnormalities of the amnion. His arguments in brief were:

A fracture *in utero* by indirect or direct violence would be hard to produce, the fetus being suspended in amniotic fluid and protected by the uterine and abdominal walls.

Violence sufficient to produce such a fracture would usually at least produce miscarriage.

If uterine pressure were the cause of fracture we should have fractures occurring with some frequency *intra partum*, when the intrauterine pressure is greatest; in fact, however, such fractures occur only at or near full term, and as a result, not of intrauterine pressure alone, but of the counterpressure of the bony pelvis as well.

Callus is practically never found in the cases seeming to belong to the class under discussion.

The presence of the so-called scar is not valuable evidence of compound fracture — it is not even proved that it is a scar.

The defects of fibula and toes, so frequently associated with the tibial bend, point to an origin as early as the second month of fetal life, for at this time the parts are laid down, and defects in the true sense cannot arise later. These defects cannot be so far as we can see either cause or result of the so-called fracture. Hence the association points to a common cause for both. It seems likely that both are due to pressure and pull of the abnormal amnion and its adhesions — the more likely inasmuch as this seems to be the cause of other similar deformities.

Haudek, in an extensive article in 1896, accepting Sperling's conclusions, adds to the evidence the report of the microscopic examination of one of these so-called scars which he had excised. It showed no interruption of the skin layers, and only such fibrous and atrophic changes as could best be explained as the result of pressure, in short, could not be called true scar. He also called attention to the fact that defects of the radius, which in early fetal life lies exposed in supination, are, with the associated defect of thumb and fingers, the not infrequent counterpart of defect of the similarly exposed fibula.

Kirmisson notes in this connection the scar-like mark over the bowed ulna which occurs in some of these cases of radial defect.

Nelaton, Kirmisson, Hoffa, Walsham and Hughes, and very recently Nasse, in the new *Deutsche Chirurgie*, accept these views in general, and of late other theories have been largely given up. Delanglade, in an article which has just appeared, accepts the amniotic theory in general, but is inclined to lay more stress on narrowness of the amnion than on the action of adhesions — a reservation also tacitly made by several others of the above list.

In considering this list of theories we find that several need not detain us. The theory of changes in bone texture lacks all evidence. That the pressure of twin pregnancies is not the cause appears from the fact that we have found no note of a case where the child was one of twins. The defect is not a fusion of tibia and fibula for, as Gould has pointed out, the interosseous membrane is present. Moreover, where the fibula is defective in part only its rudiment occupies its normal position.

Fricke's theory of persistence of the fetal bend does not account for the usual direction of the bend forward and inward, instead of forward and outward, and presupposes, without explaining, the absence of the fibula.

The theory of nerve changes as a cause lacks evidence and is not in accordance with recent work which tends to show that growth *in utero* is independent of the nervous system (Schaper).

There remains only the theory of damage to or absence of original cell-elements, that of fracture and that of amniotic changes. The arguments of Sperling and Haudek are, we think, enough to dispose of the fracture theory. It is conceivable and cannot be disproved that the defect may be one of development *per se*, but the theory of defect of development of "rays" lacks proof that such rays exist, and cannot explain the undoubted cases of defect of the fibula or radius without defects of the foot or hand. On any other theory of defect due to absence or faulty arrangement of original cell-groups, it is hard to see how to explain the relative constancy of type and the limited extent of the deformity. Nor can such a theory explain the presence of the tibial bend or of the so-called scar.

The amniotic theory, however, seems to explain all the lesions pretty clearly. We cannot but accept it as at least the most plausible theory yet advanced. The origin of the typical deformity would be, then, as follows: Between the fifth and the eighth week, pressure of a too tightly-fitting amnion interferes with the development of the exposed fibula and the outer toe or toes of the exposed foot. Lack of space determines the bend of the growing tibia; the adhesion which produces the so-called scar is a result of contact of the most salient point of the tibia with the enveloping wall. The persistent lack of growth of the whole limb is probably a result of deficient vessels and nerves due to the early pressure, as well as of disuse.

As to the frequency of this deformity it is not so rare as would be supposed from some very short lists recently published. Haudek collected, with his own case, 103 in all, and we have found others to bring the list up to 127, including the cases here reported:

Haudek's list: Ztschr. f. Orth. Chir., 1896, iv, 326	103
Kirmisson (besides 2 cases included by Haudek): Traité des mal. ch. d' origine congen., Paris, 1896; Revue de Chirurgie, 1897, p. 524	6
Walsham and Hughes: Deformity of the Human Foot	1
Steele: Transactions American Orthopedic Association, 1896, ix, 178	3
Frost: Transactions British Orthopedic Society, Birmingham, 1896, i, 10	1
Humphrey: On the fibulæ (cited by Gould, Transactions Pathological Society, xxxii, 183)	1
Proudfoot: New York Journal of Medicine, 1846 (cited by Brinton, Transactions American Surgical Association, 1884, ii, 428)	1
Langton: St. Bartholomew's Hospital Report, 1879, xv, 271	1
Kaufmann: (cited by Braun, Arch. f. klin. Chir., xxxiv, 1886)	1
Delanglade: Rev. des Malad. de l' Enfance, April, 1898	1
Tyrie: Journal Anatomy and Physiology, xxviii, 4, p. 611, 1894	1
McKenzie: New York Medical Journal, 1897, lxv, 941	1
Morestin: Revue des Malad. de l' Enfance, April, 1898	1
Rose: Chi. f. Chirurgie, 1897, No. 12, p. 807	1
Whitman: Rev. d' Orthopedie, 1898, ix, 26	1
Tubby: Deformities, 1896, p. 359	1
Cases here reported by us	3
Total	129

Nasse[1] speaks of having seen this defect repeatedly in v. Bergmann's clinic but gives no detailed account of cases, and we find reference to a report by Burmeister,[2] which we have not verified.

As to the details of cases reported, and the variations occurring, the following notes are presented:

The fibula defect is noted as total in 72 cases.

A fibula of not over half the normal length with both epiphyses present, one or both small, is thrice noted. In Volkmann's dissections, the upper epiphysis of the fibula was prolonged upward by a fibrous band. This band may, in part, replace a fibula which has no upper epiphysis (Braun) or may replace the whole fibula (Gould, Wagstaffe). Where an epiphysis is present it may show lack of ossification; this is probably the condition in Case II of our series.

Where the lower epiphysis is present it may lie higher up than normal and not serve as a part of the ankle-joint. This is shown by Bidder's dissections and by the radiographs of our Case II. Probably this condition may often obtain, for in the absence of dissections or radiographs, where no external malleolus is to be felt, it is very hard to say whether a rudimentary fibula may not be present.

A bend or angle of the tibia, directed forward and usually slightly inward, usually accompanied by the so-called scar, is noted in 67 of the published cases. The acuteness of the angle varies widely. There may be thickening of the tibia, or its head and shaft may be slenderer than normal. The shortening of the shaft is present to a greater extent than the bend can account for and may be marked. As to the lower end of the bone, it may show no obvious change or may show a knobby internal malleolus and an oblique surface for the ankle articulation.

This latter condition is the classical one in the cases of Volkmann's "Congenital Dislocation of the Ankle." It is a question, however, whether these cases do not belong in a separate class. The original cases, described by Volkmann, Kraske and Bidder, though they had defective fibulæ, showed no defect of toes, were all bilateral, and all occurred in members of one family, seven out of seventeen of whom had the deformity. This hereditary character does not accord with either the facts or the theory of cases of fibula defect in general. For these few cases, however, the dissections reported prove a definite obliquity of the ankle-joint, primary, and the cause of the extreme deviation of the foot. Bidder found in one case that the lower epiphysis of the tibia, 1.2 cm. thick at the inner side, fell away to 2 mm. at the outer.

We have no evidence of the existence of such obliquity in the majority of cases, but it is very probable

[1] Deutsche Chirurgie Lief. 62, i, Hälfte sq. 165.

[2] Verhertan aus der Geb. der Geburtsh. d. Gynaek. zum Peter von Carl Ruger, Berlin, 1852, sq. 215 (1 plate).

that it exists to some extent. The radiograph of our Case I shows some obliquity and that of Case III suggests it.

Defect of one or more toes associated with the fibular defect is noted expressly in 67 cases. In one case, however (Kirmisson), there were seven toes. Apart from one case (Otto) where the great toe is said to have failed, the defect seems always to have affected the outer toes. Several cases are reported where all save the hallux were lacking. There is often some disproportion in size of the toes. Webbing especially of the second and third is frequent. In some cases there is associated defect of toes on the other foot without fibular defect. The metatarsals corresponding to the missing toes are uniformly absent. Some of the tarsal bones may be lacking or more often there is fusion of several of them: the calcis, talus, scaphoid and cuboid, or some of these, being especially likely to fuse. There seems to be no regular type of deformity here. The foot is in equinus, usually in equino-valgus of varying degree. In five cases, however, varus or equino-varus was reported. In one of our cases the



position in the beginning seems to have been a calcaneo-valgus. The contracture of the tendo-Achillis accompanying the equinus is not entirely owing to the disuse of dorsal flexion in a short leg, for it may, as in a case of Bidder's, occur where the deformity is bilateral and equal.

In 21 cases the patella is noted as of less than normal size. It may be wanting or, at least, not distinguishable clinically. A lack of development of the whole limb, femur as well as tibia, is usual, varying widely in degree. Whether this may be in part, as Nasse seems to think, due to the atrophy of disuse, or from congenital deficiency of vessels and nerves, is hard to say. The shortening is progressive and its increase as the child grows is a very important factor in determining the disability.

Braun reports two cases, of sixteen and seventeen years, with a shortening of 7 and of 8 cm. respectively — the femur being responsible in each case for 2 cm.

Blasius found in one case at ten years, 2 inches shortening; in another, at nine years, 2½ inches.

Kirmisson had a case with 12 cm. shortening at two years, with atrophy of the whole extremity.

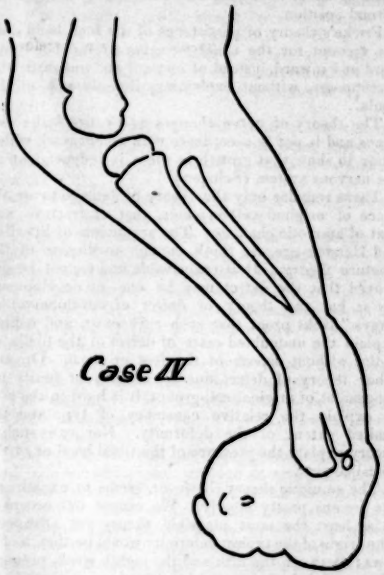
Schnelle reported a case with 3 inches shortening at three years, 5 inches at ten years, 9 inches at twenty-nine years.

Kaufmann found the increase of shortening between two and one-half and six and one-half years of age to be 2 cm. in one case.

Kemke in a case seen at birth found the tibia 1½ cm. short; at one and one-half years the shortening was 2½ cm.

The deformities associated with fibular defect have been most various, including hare-lips, skull defects, visceral anomalies, etc.; but, as would be expected from the accepted theory, defects of the foot, as a whole, of the femur, of the whole upper extremity, or especially of the ulna, or radius and fingers, are most common.

Before leaving this part of the subject it may be well to call attention to certain deformities of the leg which



seem to be of similar origin with the fibular defect — those where some constriction is apparently the cause.

CASE IV. Age four. An unreported case; seen by kindness of Dr. J. E. Goldthwait; has a shortened and deformed leg and foot, as shown in the accompanying figures. The x-ray shows no defect either of tibia or fibula, but at the point of constriction the bones lie in contact and seem to be fused. At this point there is also a bend in both bones forming an angle open forward. The site of constriction is marked by a deep sulcus, without scar, encircling the leg. The x-ray shows no ossification in the foot; manipulation shows the presence of some bones, apparently fused, in part at least. Anterior to the tarsus, the foot is pulpy, and there must be extensive bony defects. The total shortening from knee to heel is 2½ inches, from knee to ankle 1½ inches. The deformed foot measures but 2⅝ inches in length, the normal, 5 inches.

A case of deformity, strikingly similar to this, is reported by Ridlon,[3] in which the circular depression about the ankle was associated with other similar constriction rings, with spontaneous amputation of fingers, etc.

Still another case is reported by Steele,[4] where a depression just above the ankle, as from a cord, co-existed with defect of fibula and toes and bend and so-called scar of tibia.

These cases, taken together, make it seem possible that this class of cases may also be due, not to strangulation by the umbilical cord, but, like those we have been considering, to abnormalities of the amnion, although the mechanism is not clear.

Chance[5] cites similar cases, and explains them as a result of amniotic adhesions.

The conditions to be considered in treatment are: The total shortening; the abnormal axis of the lower part of the tibia; the equinus — the shortened calf muscles; the valgus. These are present in varying proportions in different cases. There can, therefore, be no routine treatment. The total shortening may be so great, especially if the other deformities of the limb are also extreme, that amputation will be the only resort. This has been repeatedly performed. So far as the shortening is due to the bend in the tibia, it is amenable to treatment by osteotomy or osteoclasis. Brinton, in one case, reduced the shortening in this way from 2½ to 1½ inches, and Rose reports the successful correction by osteotomy of a right-angled bend in the tibia. Tenotomy of the tendo-Achillis has usually been necessary as an accessory to this as to other operations on these cases; it has also been performed as the only means of relief, but without much result. In some cases a wedge osteotomy has been performed, in one case (Langton) followed by non-union. There have been other unsatisfactory results after osteotomy, but there seems no reason, if the operation is carefully done, why the tibia cannot be accurately straightened in this way, as has been done by Rose, Brinton, Kirmisson and others, nor why there should be a return of the deformity, as has occurred (Küster).

As to avoidance, so far as may be, of the increase of shortening with the growth of the child, Nasse lays stress on early use of the limb, with proper support, to avoid atrophy from disuse.

The equinus may always be remedied by tenotomy of the tendo-Achillis, which has so often been performed. The important fact to bear in mind in this connection is that the equinus is in large measure an attempt at necessary compensation of the total shortening, and, if the ankle can be supported in the equinus position, it is hard to see what is to be gained by the tenotomy, unless, indeed, the shortening is so little that a moderately high sole will fully compensate it.

The most difficult problem to treat has usually been the valgus deformity. This is not, at least in the majority of cases, a valgus of pronation and flattening alone but rather a tipping outward of the whole foot, including the astragalus, which has no external malleolus to hold it into place. Moore[6] has recently reported cases of valgus, due to the removal of the fibula for disease, which show this mode of production of the deformity. In some cases, at least, an obliquity of the lower surface of the tibia determines the valgus; in others there is apparently no such obliquity. The tipping outward of the foot must also be favored by the irregularity of the articular surface of the astragalus; also by the fact that the bones of the tarsus often are partly fused, and hence must have little mobility. These facts, probably, are the explanation of many failures in the use of the high sole after tenotomy of the tendo-Achillis, and must be carefully considered in outlining any treatment.

In a proportion of the cases (as in Case III of our series) there is contracture of the peronei, as well as of the calf muscles, which necessarily prevents correction of the valgus until tenotomy is performed. The section of the peroneal tendons has been performed (Brinton, Nelaton, Walsham, Kirmisson and others) with good success.

In cases where there was obliquity of the ankle-joint, a wedge osteotomy above the ankle has been performed by Riedinger and by Walsham with good result. Volkmann, in one such case, took a wedge out of the articular surfaces, securing correction of the valgus and anchylosis of the ankle. The result was fair.

Simple resection of the ankle-joint has been done in a number of cases. One of the most successful is a recent case by Rose, where the lost ankle motion was compensated by extra mobility in Lesfranc's joint. If this anchylosis be so effected that the foot remains in plantar flexion (Braun), this will lessen the necessary height of the sole. Where the deformity is bilateral this has, of course, no point, but in other cases seems desirable. The Wladimiroff-Miculicz resection, suggested by Kemke, but not carried out, would have no advantage. In two cases (Rincheval, Nasse), Bardenhauer's operation, the splitting of the tibia, and the insertion of the talus in the split has been carried out. Nasse secured anchylosis in equinus. In both cases the result seems to have been satisfactory.

In cases where the rudiment of the fibula, as shown by the x-ray, is of some size, but situated higher up than normal, it seems possible that an operation aiming to slide this down and fix it to the tibia as an external malleolus, might be worth considering. It has apparently never been done.

Attempts to remedy the defect by orthopedic apparatus have, on the whole, been about as satisfactory as the operative cases. The worth of operative procedures must vary with the case; but, in most cases, and especially where the limb as a whole is markedly atrophic, not much is to be expected. In a recent discussion by Kirmisson, Nelaton and others, it came out clearly enough that the results attained immediately after operation are not conclusive as to the end result. Bidder gives plates of two cases: one where Volkmann did ankle resection; the other one of Küster's, where there had been an osteotomy; they are not encouraging. Probably in any case, even if operated on, an apparatus of some sort must be worn to prevent recurrence or the rise of some new deformity. The limb is primarily defective as well as deformed, and correction of the deformity, even if complete, does not solve the whole problem. Probably, unless osteotomy promises some considerable gain in length, or in the position of the foot, or unless peroneal contracture interferes with the reduction of the valgus, no operation, not even a tenotomy, will usually be worth while. If a valgus shoe with a

[3] Ridlon: Transactions American Orthopedic Association, vol. ix, 179, 1896.
[4] Steele: Ibid, p. 175.
[5] Chance: Bodily Deformities, London, 1862, p. 135.
[6] Moore: Annals of Surgery, 1896, xxiv, 634.

high sole, sloped to fit the equinus, and with side irons, can be satisfactorily fitted, there seems no reason for tenotomy of the Achillis.

To sum up (in so far as one may generalize where cases so vary): Osteotomy to be performed not merely because deformity exists, but only for definite indications; tenotomy only to reduce the valgus or as an adjunct to osteotomy; resection of the ankle or Bardenhauer's operation, where apparatus will not control the tipping of the ankle; amputation only in cases utterly unfit for other treatment; treatment of all ordinary cases by apparatus to support the ankle, and prevent valgus — high sole to supplement the equinus in equalizing the shortening — these would seem to be the general lines of treatment. The treatment seems to be at best unsatisfactory, and, as always in such case, operation is to be avoided unless we have some clear gain in view.

Appended is a partial bibliography; other references, especially to older and less accessible publications, with detailed citations of a number of cases, will be found in Haudek's article:

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GONORRHEA IN WOMEN.[1]

BY WARREN R. GILMAN, M.D., WORCESTER, MASS.

I SHALL not attempt to discuss this subject at length, but to call to your attention some of the important points which are well worth consideration. The disease usually begins as an acute infection, but the tendency to the subacute form of inflammation, which is so characteristic of it, is sometimes seen even at the outset. I have seen very few cases during the first acute attack, and this is the experience of many men who see a larger number of cases. It may be that women are ashamed or reluctant to seek advice, and do not do so until their sufferings force them to it.

The meatus is the favorite point of attack, and following that, the cervix, the vulva and vagina. The inflammation spreads rapidly, and involves the external genitals, vagina and cervix. It is purulent in character, and the parts are bathed in pus. The mucous membrane of the lower edge of the meatus is everted and reddened; the openings of the adjacent ducts are evident as red points.

Bartholini's glands are inflamed and tender and the orifices of their ducts are pouting. Pus can usually be squeezed from these ducts and from the urethra.

The gonococci do not find such favorable conditions for growth in the vagina as they do in the glands of the labia and in the urethra.

The vagina bacillus of Döderlein, which is found here in normal conditions, produces a small amount of lactic acid. The normal acid secretion of the vagina destroys most organisms, but offers little resistance to an advancing gonorrheal inflammation.

A more serious obstacle is the character of the epithelium, which is of the type called pavement. It was contended for years that the gonococci did not grow upon such epithelium, but Mandl and Klein have proved that they do, and are able to demonstrate them in the cells.

The vaginal mucous membrane of a young, unmarried girl offers more favorable conditions for their growth than that of a multipara.

The inflammation upon the vaginal portion of the cervix and about the external os, which may be primary or the result of extension from the vagina, is purulent in character.

There is usually little difficulty in making a diagnosis of acute gonorrheal inflammation of the external genitals and vagina. The symptoms and appearances of the parts alone are sufficient, but, if one wishes absolute proof, it can be found by bacteriological examination of a drop of pus from the uretha or from the duct of one of the vulvo-vaginal glands.

By Gram's method of staining, the gonococci can be plainly demonstrated. This early stage of the disease is the time when the gonococci can be found easily, and it is also the time when treatment is the most effective.

The treatment must be prompt and painstaking. It is sometimes claimed that vigorous treatment of this stage of the disease is as unwise as it is in the acute gonorrhea of the male. I do not agree to this except as it concerns the urethra, and even then it is much less likely to do harm in women than in men.

For many years the favorite and most satisfactory remedy has been nitrate of silver. In the few acute cases I have seen I have used a solution of twenty grains to the ounce and what may be called a dry dressing. The parts should be cleansed with a solution of borax, in order to remove all pus and mucus, and to leave a clean surface upon which to apply the nitrate of silver. The silver solution is then painted upon the entire surface and allowed to dry. The vagina is lightly packed with clean gauze, and wisps of absorbent cotton placed between the opposing surfaces of the labia. The absorbent cotton may be removed every four or six hours and the surfaces, which it protects, bathed. The patient removes the gauze in twelve hours and takes a douche of bichloride of mercury, one to five thousand, or permanganate of potash, one to five thousand, every six hours. The nitrate of silver and gauze packing are reapplied every second day. Under this treatment the acute symptoms will usually begin to abate within ten days. The dry dressing gives the patient great relief. The solutions

[1] Read before Worcester Medical Association, March 21, 1898.

of nitrate of silver, bichloride of mercury and permanganate of potash undoubtedly destroy the gonococci which they reach upon the surface, and it is probable that the silver solution destroys those that have not penetrated deep into the mucous membrane. This shows how important it is to begin the treatment early when the cocci are upon or near the surface and to apply the germicidal solution to the whole surface.

As a matter of fact one rarely has the opportunity of beginning treatment at once, and in a very few days the glands in the vestibule, labia majora and vaginal mucous membrane are affected, and the gonococci are beyond reach of treatment applied to the surface.

The invasion of one of Bartholini's glands may result in an abscess; in this case it is best to open the abscess and extirpate the gland. The more common result is a chronic form of inflammation; the gland is enlarged and tender, and a drop of pus is usually found at the mouth of the duct. This pus is a constant source of infection.

With the newer silver salts, argonin and argentamin, I have had no experience. The former in a two-per-cent. solution and the latter in a one to three thousand solution are said to penetrate the mucous membrane more deeply than nitrate of silver and to destroy the gonococci without doing any injury to the tissues. Neither one coagulates albumin as nitrate of silver does.

Protargol is highly recommended by Goldenberg. It does not coagulate albumin; its solution is clear and is not precipitated by acids or alkalies. It is said to penetrate the tissues more deeply than argonin and argentamin. It may be used as a powder. A three-per-cent. solution of lactic acid is also recommended. Its use is probably suggested by the fact that the acid is present in the normal vagina and kills most pathogenic organisms placed there for experimental purposes.

I believe that the most prompt and vigorous treatment of acute gonorrhea of the external genitals and vagina rarely if ever cures. It frequently does limit the disease to the chronic manifestations in the glands of the vestibule and labia. When the gonococci reach the mucous membrane about the external os uteri, either by extension or at the primary infection, they are almost sure to invade the endometrium.

Dudley says, "He who wishes to successfully abort a gonorrhea of the uterus must be there with his antidote before the septic intercourse takes place."

As the acute inflammation subsides the symptoms becomes less and less annoying. There is no doubt that the mucous membrane becomes more tolerant of the gonococci and that the gonococci grow less virulent in their action upon it. But even in their most quiescent stage the gonococci produce an acute inflammation if transplanted to a fresh field. A man who is infected by a woman suffering from a chronic inflammation has acute gonorrhea. The chronic form of inflammation, or perhaps more properly, the results of the acute inflammation are not very evident in the vagina. The mucous membrane is likely to be somewhat atrophied and irritable, and there is a scanty but constant leucorrhea. Frequently there is present a condition called vaginitis granularis or papulosa. In the glands about the meatus and in the labia majora the results are plainer. The gonococci linger in these glands for an indefinite period and have been found years after the primary infection. Even when no gonococci are found in the pus from the ducts, the inflammation persists.

Bartholini's glands remain a little swollen and the orifices of the ducts are quite distinct as red points.

The chronic form of inflammation of the vagina and vulva is very liable to exacerbation, especially after irritation of any kind and in this fact lies the chief source of annoyance.

These cases are the ones which are seen in such large number both by gynecologists and general practitioners. I see many in my dispensary work, and have always had great difficulty in making a positive diagnosis and treating them satisfactorily.

The routine treatment I have adopted is as follows: The vagina is washed out and then dried with absorbent cotton. Powdered borax or boracic acid is then dusted over the entire surface and dry gauze packed lightly about the cervix and in the vagina. Absorbent cotton and powder may be used between the labia if necessary. The gauze is removed in twenty-four hours and a vaginal douche taken. The powder and gauze are reapplied every second day. Astringent powders are not necessary. Aristol and dermatol are excellent but too expensive. This treatment is not curative but it keeps the parts clean and relieves the symptoms which are caused by an exacerbation of the chronic trouble.

Improvement usually begins in a few weeks and the patient is free from annoyance for several months, when there is likely to be another exacerbation.

In course of time the mucous membrane becomes so toughened and tolerant that these periodic attacks occur less frequently and are less severe. It frequently happens in this chronic stage of the disease that an abscess is developed in one of Bartholini's glands. Attempts to dilate the duct and let out the pus are not satisfactory and it is best to incise the abscess and curette out the whole gland; the cavity is packed with gauze and heals by granulation.

In a dispensary clinic it is a matter of considerable interest to decide which cases are gonorrheal. Among the poor and unclean women, leucorrhea is so common as to be of little value as a guide. A chronic inflammation of the glands of Bartholini and their ducts is a pretty sure sign of gonorrhea; but one naturally looks for an absolute test in the bacteriological examination of the vaginal discharges.

I think it has been the common belief that such an examination gives positive evidence as to the character of the inflammation. That this is not the case is shown by my own limited experience and the testimony of expert bacteriologists everywhere.

During the past year I have had under observation ten cases which I chose from a much larger number because they seemed to me to present strong clinical evidence of gonorrhea. In none of the cases were there any acute symptoms.

Bacteriological examinations of the secretions from vagina and labia were made, in most cases more than once. In no case was I able to demonstrate gonococci. In one case pus for examination was taken from an abscess of Bartholini's glands which I opened and curetted. Gram's method of staining was used in every case.

A few years after Neisser discovered the gonococcus, it was found that there were other cocci present in vaginal discharges which resembled them very closely.

It was evident that the shape of the cocci and their position in the pus cells was not proof of their character. Cocci which corresponded in every particular to the description of the gonococci were found in pus which was known not to be of gonorrheal origin. The term "pseudo-gonococcus" was frequently used.

Gram's stain settled half the problem and it is now accepted that the cocci which are decolorized by this stain are gonococci. This test is sufficient in gonorrhea in the male because there are very few other cocci present and decolorized diplococci are easily demonstrated. In the female it is far different except at the very onset of the disease in the meatus.

A cover-slip preparation of pus from the vagina shows a field crowded with bacteria. A single gentian-violet stain will show scores of diplococci in and about the cells; some of these still pass for gonococci in a few reports. When the attempt is made to decolorize with potassic-iodide solution, it is not successful and proves that the majority of cocci are not gonococci. But in such preparations, swarming with bacteria, who can say that there may not be a few gonococci? I think it is impossible to do so. This is the reason that even Gram's method is not a final test; there are so many organisms in the field that a few decolorized gonococci cannot be distinguished and one is still unable to actually prove the gonorrheal nature of the discharge. When the result of the microscopic examination is negative, as it is in the majority of cases, the only absolute test is the cultivation and isolation of the gonococci.

Martin in 1892 quoted a number of investigators who said the gonococci could be differentiated from other diplococci only by cultivation.

Brose and Neisser in 1893 found cultivation necessary in chronic urethritis in the male. Heiman in 1895 said that cultivation was the only absolute test in many cases.

The cultivation of the gonococcus calls for a great deal of technical skill and experience and must be left to the trained bacteriologist. The microscopic examination of discharges can be made by the gynecologist and if it shows gonococci, the diagnosis is assured. If it is negative, the diagnosis must be made from the clinical history and the appearances of the parts. In this way I think it is possible to make a fairly accurate diagnosis in most cases. At a recent meeting in Berlin, Behrand, who has charge of an institute for the treatment for prostitutes, said that he attached little value to the presence or absence of gonococci. They may be present in a given case at one examination and absent at the next; cases which do not show them are often contagious. Microscopical examination gives a positive result only in those cases where it is superfluous; in other cases it is unreliable. The treatment should be directed by the symptoms.

It is probable that in a large proportion of the cases of gonorrhea of the vagina and external genitals, the endometrium is attacked sooner or later. If the mucous membrane about the external os is one of the points of primary infection, the endometrium is the more quickly affected. While the normal secretion of the uterus, like that of the vagina, destroys most pathogenic bacteria, it has little effect upon the gonococci. So this organism finds the best of conditions for growth in the endometrium which is covered with ciliated cylindrical epithelium. Acute gonorrheal endometritis is not a very active form of inflammation even at the outset, but it is best to retain the term acute to distinguish it from the later and chronic form. In the uterus the gonococcus always causes an interstitial endometritis with a suppurative catarrh.

The symptoms of acute endometritis are not severe. There is likely to be some pain in the back and a sense of weight or fulness in the pelvis; only a small amount of pus is secreted by the endometrium and the discharge from the external os is chiefly glairy mucus from the cervical mucous membrane. The edges of the external os are often eroded and bleed easily; this condition is more marked when there is an old laceration of the cervix. The muco-purulent discharge has an irritating effect upon the vagina and external genitals which have already passed through the acute inflammatory stage, and in some cases when the primary infection is in the cervix, the discharge from these parts may be the cause of acute vulvitis and vaginitis.

It is quite generally admitted that local treatment of the acute inflammation either by the curette or caustics is unwise because of the danger of producing a mixed infection. The active stage of the pure gonorrheal inflammation subsides in a short time and there is less danger of violent inflammation of the tubes than is the case with a mixed infection.

The endometritis which is seen so frequently in practice is subacute and chronic in character. The gonococci penetrate the mucous membrane and muscular walls and have been found in the peritoneal covering; in this way it is possible to have a peritonitis without infection through the tubes. Abscesses have been formed in the walls of the uterus. In this connection it is only fair to state that Bumm very recently announced that he still believed the gonococcus to be a mucous-membrane parasite.

In a typical case of chronic endometritis, the mucous membrane is thickened and congested and the surface covered with a muco-purulent secretion; it bleeds easily. The muscular walls are thickened and the uterus as a whole is heavier than normal. The ultimate result of the process is a considerable atrophy; the ciliated epithelium is replaced by a smooth pavement epithelium which resembles to some extent that of the vagina and has few glands of the normal uterine type; the walls of the uterus become thinner, some of the muscular tissue being replaced by connective tissue. This change may be said to be nature's method of making the uterus an unfavorable field for the growth of the gonococcus.

In the early stage of inflammation it is not difficult to demonstrate the gonococci; but in the chronic stage the organisms are rarely found in the secretions; they must then be sought in the mucous membrane. Sänger applies the term residual gonorrhea to this stage of the disease when the gonococci cannot be found. The inflammatory process goes on long after the exciting cause has disappeared. Wiener says there are few cases on record in which gonococci have been found in the secretion three months after infection.

The treatment of chronic endometritis by the curette and caustic applications is now very generally regarded as the most effective. It removes the diseased mucous membrane and this is replaced by a new membrane which is at least more nearly normal in character. Many observations have been made to ascertain the length of time necessary for this reproduc-

tion and it appears that an entire endometrium may be reproduced in about twenty-five days. The curetting should be done thoroughly and proceed systematically from any one point over the whole surface; the object sought is the removal of the entire endometrium down to the muscular tissue. If a curette of medium size is used upon the body of the uterus, a small instrument must be used upon the cornua. Many operaters advise the use of the small curette exclusively. The denuded surface should then be painted lightly with a strong caustic, like carbolic acid. This may seem heroic treatment, but it must be nothing less in order to be effective. Packing the uterus is generally conceded to be unnecessary.

Salpingitis is almost certain to follow the endometritis and the inflammation is of the same type as that in the uterus. The shape of the tubes and their relation to the ovaries and pelvic peritoneum make the results of the inflammation complicated and dangerous. The inflammation is much less violent than that caused by the streptococcus and its progress less rapid. The closure of the abdominal opening of the tube is one of the important results of the inflammation; this is not accomplished at once but soon enough, as a rule, to prevent the escape of pus into the abdominal cavity. If the inflammation is not severe and the uterine end of the tube not obstructed at once by the swollen mucous membrane, very little pus may be shut up in the tube. In a considerable number of cases the disease goes on slowly through its regular course without ever causing much distention of the tubes; the later atrophic changes in the mucous membrane and muscular tissue leave it finally not much more than a cord-like band connecting the ovary with the uterus. While such a result is not the rule, it occurs often enough to have some weight in the consideration of treatment.

The accumulation of pus is not usually rapid enough to call for operation early, especially in a pure gonorrheal infection; but repeated chills, severe pain and increase in size of a well-defined tumor may make an operation imperative. A conservative and palliative treatment of the early or acute stage is followed by most men unless the symptoms become very urgent. Early operation is advised, however, by some men. Removal of the tube at this time is sometimes a little difficult because it is much swollen and so friable that a ligature cuts through it readily.

Stone[18] says that in the future the correct treatment of acute salpingitis will be careful irrigation of tube and return to abdominal cavity. He cites a case in which he removed the right ovary and tube and then washed out the left tube with corrosive-sublimate solution, returning it to the abdominal cavity. Recovery.

In the early stage of salpingitis, gonococci are found in the pus and in the mucous membrane. Washing the surface with corrosive sublimate cannot possibly kill them all and the reopened orifice at the fimbriated extremity leaves a clear course for their invasion of the abdominal cavity. This procedure may be comparatively safe a few months later when the contents of the tube are sterile. In certain cases when the tumor has been shut off from the general peritoneal cavity by adhesions, the abscess may be opened with safety through an incision in the vault of the vagina; in this way it may be reached and drained with success. The removal of the tube is sometimes necessary and it may be carried out either through an abdominal or a vaginal incision.

As I have said, the pus does not usually accumulate fast enough to call for early operation; much of the swelling felt on examination is in the mucous and muscular tissue of the tube and is not due to a large collection of pus. As this infiltration of the tissues subsides, the tumor may decrease in size to some extent.

Of all the palliative measures for the treatment of acute salpingitis the most important is rest, and the more complete the better.

In the chronic stage of salpingitis the inflammatory thickening of the walls is much less marked. Atrophic change in the mucous membrane and muscular tissue takes place as it did in the uterus. It may be that this change in the uterine end of the tube occasionally relieves the obstruction to the outflow of a collection of pus, and thus a pyosalpinx is discharged through the uterus.

In many cases the history of the disease, as told by the patient, points strongly to such an escape of pus; but absolute proof of it is hard to obtain. It has been very generally believed that the pus does not find an outlet in this way. A case reported by Dr. G. E. Shoemaker is of interest in this connection. The patient gave a history of several attacks of bearing-down pains, relieved in each instance by a discharge of pus from the vagina. Vaginal hysterectomy was done and while a tube which was distended with pus was being manipulated, pus began to flow from the external os. Later examination of the organs removed showed a patulous tube between the abscess and the uterine cavity.

Dr. R. T. Morris, while washing out a chronic pus-tube with peroxide of hydrogen, was able to force the fluid through the tube and out the cervix.

Within a tube closed at each end the pus gradually increases. In some instances the amount is never large enough to cause excessive pain or to threaten rupture. Such a small collection sometimes gradually changes to a hydrosalpinx with a little caseous material in the dependent part.

Many tubal abscesses grow to a considerable size; the wall of the tube becomes thinner under the increasing pressure until it finally gives way. Long before this occurs, dense adhesions have bound the tube, ovary, uterus and rectum together in a mass which is no longer within the general peritoneal cavity. The pus may break into the rectum or bladder and be discharged. A description of the conditions found in the pelvis as the result of such a perforation will not be attempted here.

Several years ago it was noticed that a few drops of pus from a chronic pus-tube escaping into the peritoneal cavity did not necessarily produce a general peritonitis. Investigations have shown that after a certain time the gonococci disappear from the pus and the pus becomes sterile. Kiefer gives the result of examining forty cases of pyosalpinx which were operated upon. In fifty to sixty per cent. of the cases the pus contained no germs. In all the cases the peritoneum was soiled during operation, but in no case was there purulent infection of the peritoneum. This shows that bacteria in an enclosed sac lose their virulence. The average time necessary for this change is nine months.

Dr. Parvin quotes statements of Dr. Ludwig Pick as follows: In one hundred and twenty-two cases of

pyosalpinx, seventy-five were free from bacteria. Of the forty-seven containing bacteria, twenty-eight were gonorrheal.

While it is not advised to operate upon a pus-tube during the acute stage of inflammation, it is wise to operate, if possible, before extensive adhesions have formed.

An intact pus-tube, which is not covered and bound down by strong adhesions, may be removed with comparative ease and safety; but the operation for the removal of tube and ovary when there is a thin-walled tube full of pus or a tubo-ovarian abscess is extremely difficult. All the organs in the pelvis are bound together in a mass and we know that within there is a collection of pus. In such cases salpingo-oöphorectomy is sometimes impossible and it is necessary to remove uterus, tubes and ovaries. I will not go into the details of operation upon the pelvic viscera, but will call to your attention some of the methods.

Conservative *versus* radical pelvic surgery has been the topic of innumerable meetings and papers during the past four years. Somewhere between the two extremes will be found the majority of careful operators. The conservative treatment of pus-tubes is interesting and instructive, having as its object the preservation of the tubes and their functions. The tube is separated from its adhesions, the fimbriated extremity opened and the canal cleansed of its purulent contents. A probe is passed through the tube into the uterus and the normal passage from the ovary to the uterus restored. In chronic pus-tubes where the pus is sterile, this is comparatively free from danger.

The tube is sometimes amputated near the uterus, the mucous membrane sewed to the peritoneal coat and the stump then fixed in apposition to the ovary. Such treatment has many earnest advocates who believe in it and put it into practice.

The other extreme of treatment calls for the removal of both tubes and often of the uterus also. Men who believe in the radical treatment of gonorrheal salpingitis claim that the uterus and tubes are damaged beyond recovery and are therefore useless. So, when it is necessary to remove both tubes, it is better surgery to remove uterus and tubes and ovaries than to leave behind organs which are not only useless but liable at any time to an acute exacerbation of the old inflammatory process. Arguments for this method of treatment are well stated by Henrotin[2] and Robinson.[3]

Hysterectomy for disease of tubes and ovaries is very strongly opposed by the majority of surgeons. Chronic gonorrheal endometritis is a very doubtful source of danger after the tubes and ovaries are removed, and the fact that the uterus is no longer of use as an organ of reproduction is no argument for its removal. There are cases in which it is impossible to remove pus-tubes and adherent suppurating ovaries without removing the uterus also. In these cases there is little discussion as to the propriety of the operation.

Another matter of interest to-day in pelvic surgery is the route by which operations are to be performed. There is a growing tendency to operate through incisions in the vaginal vault. Men who operate often have acquired wonderful dexterity in this work but in their enthusiasm they often overestimate the advantages of the vaginal route and underestimate its dangers. All operations upon the pelvic viscera which are not concerned with large tumors have been done in this way and the results are extremely satisfactory.

It is claimed that there is much less shock following an operation done through the vagina than there is when the same operation is done through an abdominal incision; also, that the operation is performed much more easily and quickly.

The men who operate in this way so frequently are the ones who advise hysterectomy whenever it is necessary to remove both tubes. They claim that vaginal hysterectomy is almost a simple operation. Granting that vaginal hysterectomy is less dangerous than abdominal hysterectomy, we then ask if removal of tubes, ovaries and uterus through the vaginal incision is less dangerous than the removal of the tubes alone through an abdominal incision.

There is a wholesome reluctance on the part of most men to operate on organs out of sight when it is possible by other methods to keep them in view during operation. There is no doubt that the danger of serious and fatal hemorrhage is greater in the vaginal than in the abdominal operation.

[2] American Gynecological and Obstetrical Journal, April 1897.
[3] Loc. cit., October, 1897.

Clinical Department.

A NOTE ON THE DURATION OF EOSINOPHILIA IN TRICHINOSIS.

BY THOMAS B. BROWN, M.D., BALTIMORE, MD.

In a comparatively recent number of the *Boston Medical and Surgical Journal*,[1] Dr. Richard C. Cabot, in discussing eosinophilia in trichinosis (the first account of which had been given by me in the *Johns Hopkins Bulletin*, April, 1897, followed by a complete report in the *Journal of Experimental Medicine*, Vol. III, No. 3, of three cases in which a marked eosinophilia, between 45 per cent. and 68 per cent. had been found in the blood, and living trichinæ in the muscle), remarked that it would be interesting to know how long the eosinophilia lasted after the cessation of the acute symptoms.

This question had also occurred to me, but unfortunately, all our three cases left the hospital and the city while still showing a marked eosinophilia, 16.8 per cent. in the first, 17.6 per cent. in the second and 34.7 per cent. in the third, with a leucocytosis of 11,000 per c. mm. in the first, and 9,000 per c. mm. in the second and third cases. Recently, by a lucky chance, the third case has again come under my observation and, as there had been no symptoms since leaving the hospital (January 22, 1898) to suggest another trichinotic infection, I took the opportunity to examine his blood to see whether any trace of the old eosinophilia remained.

The count made on July 10, 1898, was:

Leucocytes (per c. mm.)	7,000
Polymorphonuclear neutrophiles	68%
Small mononuclears	23%
Large mononuclear and transitional forms	6%
Eosinophiles	3%

That is, practically, a normal number of leucocytes per c. mm., and normal percentages of the various forms, thus showing that the eosinophilia had entirely disap-

[1] December 30, 1897.

peared within the five months subsequent to his leaving the hospital. This one would naturally expect if the eosinophilia is related to the acute stage of the trichinotic infection, as seems to be the case. Nevertheless, that there is an increase of the eosinophiles in the blood for a *considerable* time after the cessation of the acute symptoms, is highly probable, when we consider the very great increase in the number of these cells in the blood, and the fact that a considerable length of time must elapse after the enormous new formation has ceased, before a sufficient number has been destroyed to bring their proportion again within normal limits.

The fact that all three of our cases, leaving the hospital after their symptoms had practically ceased, had still a marked eosinophilia, shows that for a certain length of time at least, the increase is maintained, although gradually lessening.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY JAMES H. WRIGHT, M.D.,
Director of the Laboratory of the Massachusetts General Hospital.

THE REPAIR OF WOUNDS OF THE BRAIN.

TSCHISTOWITSCH[1] has studied the healing of aseptic wounds of the brain tissue of animals. He finds that in the process of healing and of filling up losses of substance, the connective-tissue elements of the pia and of the blood-vessels play the chief part. The neuroglia takes a very insignificant part in the process and that consisting only in the formation of a sclerotic zone about the cicatrix or foreign body when there has been long-continued irritation. He thinks it likely by a more gradual destruction of the brain tissue than was possible in his experiments, this growth of the neuroglia may become relatively more extensive, as in progressive degenerative processes in brain disease.

No regeneration of nerve cells was observed. With regard to the regeneration of nerve fibres the author is in some doubt, but does not deny that it may occur. He found that the epithelium of the ventricles had little power of regeneration.

STREPTOCOCCUS INFECTION AND PHAGOCYTOSIS.

It is a well-known fact that some specimens of the streptococcus pyogenes are capable of inducing in animals marked inflammatory reactions, while others are not. The satisfactory explanation of this fact as well as the explanation of the general question of immunity to infection is not yet forthcoming. Some bacteriologists consider that the fluids of the body kill the bacteria, while others, and particularly the French bacteriologists, have long maintained that the bacteria are taken up and destroyed by leucocytes, or in other words, that immunity to bacterial infection depends on phagocytosis.

Marchand[2] has recently reported the results of an experimental study of the effects of the blood serum and of the leucocytes of animals upon both virulent and non-virulent forms of the streptococcus pyogenes, with the idea of determining whether any differences were to be observed between the two forms. Out of deference to the objection that any difference noted between the behavior of the virulent and non-virulent forms might be due not to difference in virulence, but to the fact that the organisms were of separate species, he used exclusively virulent and non-virulent forms which were developed from the same stock cultures. The streptococci were isolated from cases of infection in man and were primarily of a low grade of virulence. From these cultures, however, cultures having a high degree of virulence were produced by successive inoculations of rabbits, and thus for each non-virulent form there was a corresponding virulent form descended from it. One set of experiments deals with the effects of the blood serum of certain animals upon these two forms of streptococci. The organisms were sown in the serum of the rabbit, the dog and the guinea-pig, and their vitality and growth, after certain lengths of time, tested.

It was found that both forms multiplied rapidly in this fluid and no differences between them were evident in this respect, from which the author concludes that the non-virulence of the organism was not due to the destructive action of the blood serum of the animals. The behavior of the leucocytes, however, toward the non-virulent forms was found to be very different from their behavior toward the virulent forms. The methods of observing this behavior consisted essentially in the microscopical examination of the peritoneal exudate following injections of the streptococci; and also of a fluid, rich in living leucocytes, in which the streptococci were suspended.

The last-named fluid was obtained by the intrathoracic injection of a suspension of staphylococcus pyogenes aureus, which had been killed by heat. This gave rise to an exudation in the pleural cavity of a fluid containing many leucocytes and free from bacteria. Experiments with the two forms of streptococci, made as above indicated, showed that both forms exercised a considerable attractive influence upon the leucocytes, but that while the non-virulent forms were quickly taken up by the leucocytes, the virulent forms either were not taken up at all or only in very small numbers. This difference between the two forms was observed both in the experiments carried on outside the body as well as in the peritoneal cavity, and also in the case of the dead organisms.

From these experiments the author concludes that a virulent streptococcus is a streptococcus which is not taken up and destroyed by leucocytes; that it is the occurrence or non-occurrence of phagocytosis upon which immunity or susceptibility to streptococcus infection depends; and that the resistance of the animal tissues to the streptococcus is due essentially to the intervention of leucocytes.

THE ETIOLOGY OF ENDOCARDITIS.

Dessy[3] reports the results of the bacteriological examination of 36 cases of endocarditis which came to autopsy in the Pathological Institute of Professor Banti in Florence. In 34 of the 36 cases bacteria were found in the cardiac lesions. In the two negative cases the vegetations resembled more a marantic thrombosis than an inflammatory process, histologically.

Among the 34 positive cases, the pneumococcus was found in 13, the streptococcus in 12, the staphylococ-

[1] Beiträge zur path. Anat. u. z. allgem. Path., Band xxiii, Heft 2.
[2] Archives de Méd. Experim. et d. Anat. Path., tome x, No. 2, 1898.
[3] Lo Sperimentale, Anno. lii, Fasc. 1, 1898.

cus pyogenes aureus in two, the staplylococcus pyogenes albus in one, the colon bacillus in one, the pneumococcus with the staplylococcus albus in one, and the streptococcus with one or both of the pyogenic staphylococci in four cases. The lesions were of the verrucose form in 31 of the cases and of the ulcerative form in three, which latter were all among the pneumococcus cases.

From his observations in this series, Dessy concludes that the pneumococcus and the streptococcus are the bacteria most frequently concerned in endocarditis, and that they may occur alone or associated with other bacteria.

The pneumococcus infection was the most frequent in aortic endocarditis, and the streptococcus infection in mitral endocarditis.

THE TOXIN OF TETANUS.

Roux and Borrel[4] discuss, on the bases of their experimental studies, the nature of the tetanus intoxication. They point out that there is a marked affinity between the nerve cells and the toxin. This may be shown by the following experiment: An emulsion of the brain tissue of a guinea-pig is mixed with some tetanus toxin and centrifugalized. As a result, the mixture separates into two layers, the nerve tissue below and an opalescent liquid above. The greater part of the toxin will be found in the nerve tissue, with which it is united or combined in the manner of a coloring matter, while the supernatant fluid contains very little toxin. In the tetanus infection the same affinity of the toxin for the nerve tissue shows itself. In subcutaneous injections the toxin reached the nerve cells after some hours, travelling both by the blood stream and also directly along the nerves. This explains why, in experimental tetanus, the contractures always begin in the region near the seat of inoculation.

If, however, the toxin, instead of being injected subcutaneously, be injected directly into the tissue of the central nervous system, the combination of the toxin with the nerve cells takes place much sooner and the symptoms produced are quite characteristic. The rapid fixation of the poison in the nerve cells permits of limiting its action to small areas of the nervous system, so that the symptoms produced will depend to a certain extent upon the region of the nervous system which is intoxicated. It is suggested that the study of these localized intoxications may in future throw some light on the functions of different regions of the brain. The direct injection of the toxin into the brain of an animal is readily accomplished by trepannation and the operation of itself has no very injurious effects upon the animal.

The form of tetanus resulting may be called cerebral tetanus and is characterized by excitement, epileptiform seizures, polyuria, and disorders of motility.

It may be produced in animals thoroughly immunized against experimental tetanus from subcutaneous injection of the toxin. The explanation of this lies in the theory that the antitoxin of the immunized animal is in its blood and that the toxin, by direct injection into the brain tissue, is enabled to attack the nerve cells at once without being subjected to the neutralizing action of the antitoxin in the blood.

The antitoxin of tetanus is efficacious against the intoxication from subcutaneous injection of the toxin because the greater part of the toxin has to go through the blood to get at the nerve cells and in the blood it is neutralized by the antitoxin. The toxin, when combined with the nerve cells, however, is not affected by the antitoxin introduced into the blood. This hypothesis explains why, when tetanic symptoms have developed, the antitoxin fails to effect a cure. Any toxin in the circulating blood may be neutralized and the intoxication somewhat limited, but that which is already fixed in the nerve cells and in process of diffusion from cell to cell throughout the central nervous system cannot be attacked by loading the blood with antitoxin. The antitoxin, to be efficacious, should be injected directly into the central nervous system in those regions where the toxin is in process of combining with the nerve cells.

This idea seemed to be justified by experiments. Intracerebral injections of a few drops of antitoxin in tetanic animals were found to be much more curative in their effects than large amounts injected into the blood or beneath the skin.

The immunity to tetanus, both natural and acquired, would seem to be due to the fact that the poison does not reach the nerve cells, and not to the acquired toleration or insensibility of those cells.

THE BACTERIOLOGY OF THE SIMPLE POSTERIOR BASIC MENINGITIS OF INFANTS.

Still[5] has examined bacteriologically eight cases of this form of meningitis and in seven of them has found the diplococcus intracellularis meningitidis of Weichselbaum. The cases were all sporadic ones. This condition, which has been regarded as a special pathological entity, is, in the light of this evidence, to be considered as a sporadic form of epidemic cerebro-spinal meningitis.

A distinguishing complication of the disease is an inflammation of the tissues about the capsules of joints and neighboring tendon sheaths. In one of the cases, in the thick exudate in this situation, the same diplococcus was found as in the meningeal exudate.

THE GONOCOCCUS AND ITS TOXIN.

Wassermann[6] has devised a new culture medium for the gonococcus. A mixture of hog blood serum, glycerine, pepton and water is made, to which 2 per cent. of "nutrose" (casein sodium phosphate) is added. The addition of the nutrose prevents the coagulation of the serum by heat, so that the mixture may be sterilized by steam. After sterilization this fluid may be used as a fluid culture medium, or mixed with nutrient agar to form plate cultures.

As in other special culture media for the gonococcus, the serum is the most important constituent. The special advantage of this medium is that it may be sterilized by heat and so is fairly easily prepared. With cultures of the gonococcus grown in this way Wassermann has shown that while the organism is not capable of multiplying and producing any definite infection in the usual laboratory animals, it is endowed with poisonous properties. Experimenting with mice, he found that the injection into the peritoneal cavity of a few drops of a fluid culture, the gonococci in which had been killed by heat, was fatal, while the injection of the bacteria-free filtrate of the same culture

[4] Annales de l' Inst. Pasteur, tome xii, 1898.

[5] Journal of Pathology and Bacteriology, vol. v, No. 2, 1898.

[6] Zeitschrift f. Hygiene u. Infectionskrankh., Band xxvi, Heft 2, 1898.

had only slight toxic effects. From this and similar experiments he concludes that the specific poison of the gonococcus is contained in the bodies of the cocci themselves.

The virulence of the poison was found to be variable in different cultures. The poison was resistant to heat and the action of alcohol. Subcutaneous injections of the heated cultures produced in rabbits and guinea-pigs local infiltration, which in some instances resulted in necrosis. Some of these animals died of marasmus. Injections into the anterior chamber of the eye were followed by extensive inflammations. Subcutaneous injections of the killed cultures, practised upon the author himself and two other persons, gave rise to local inflammation, with fever, and pains in the head and extremities during one or two days.

Repeated doses failed to show the development of any tolerance for the poison, and all experiments directed toward the production of an immunity were fruitless.

THE VENOMS OF SNAKES AND SCORPIONS.

The poisonous substances secreted by certain snakes resemble very much the bacterial toxins in their effects upon the animal organism. Like the latter also, they are destroyed by heating, and animals may be immunized against them, with the development of antitoxic substances in their blood serum. There are also some indications that antitoxins efficacious against bacterial poisons may also be efficacious against the poisons of snakes.

The snake poison, however, differs from the bacterial poisons and certain others, in that it acts without any definite period of incubation, it being possible with it to produce instantaneous death, if injected into the animal in sufficient quantity. Subcutaneous injections are followed by very marked inflammation at the seat of inoculation in addition to the general toxemia. Nowak[7] has recently studied the histological lesions produced by subcutaneous injections of the venoms of certain snakes and scorpions. The venoms used were first heated to 80° C., to diminish the local reaction produced by them, and were then filtered through unglazed porcelain.

The filtrate was a clear fluid, which was very poisonous. Various quantities were injected, so that the animals survived for periods ranging from a few minutes to several days. In general, the lesions observed were most marked in the liver, kidneys and lungs. If the intoxication has been of a certain duration, the liver tissue may be almost completely destroyed, partly by fatty degeneration, partly by necrosis. In the kidneys there were necroses and exudative processes, as well as fatty degeneration. The lungs, in some cases, were the seat of a marked focal inflammation, pneumonic in character. Fatty degeneration was also observed in the spleen and heart-muscle in animals in which the fatty degeneration of the liver was very marked.

The author calls attention to the very marked resemblance of the lesions to those of yellow fever.

THE BLOOD IN TRICHINOSIS.

T. R. Brown[8] has found in three cases of trichinosis a marked increase in the number of eosinophilic leucocytes of the blood, together with a decrease in the number of neutrophilic leucocytes. The total number of leucocytes was more or less increased in all three of the cases. The microscopical examination of pieces of diseased muscle tissue showed also more or less infiltration with eosinophilic leucocytes and some leucocytes which might be regarded as transitional forms between these and neutrophilic leucocytes. This suggests the possibility that the eosinophiles in the muscles may be derived directly from neutrophiles.

Brown considers that trichinosis in its sporadic form is more common than is generally supposed and that in cases manifesting indefinite intestinal, articular or muscular symptoms, an examination of the blood with reference to the number of eosinophiles should be made. An increase in the number of eosinophiles in the blood, he regards as a diagnostic sign of trichinosis.

[7] Annales de l'Inst. Pasteur, tome xii, No. 6, 1898.
[8] Journal of Experimental Medicine, vol. iii, No. 3, 1898.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION,

TWELFTH ANNUAL MEETING, BOSTON, MASS., MAY 17–19, 1898.

(Concluded from No. 8, p. 199.)

THE FORCIBLE CORRECTION OF DEFORMITIES IN POTT'S DISEASE.

DR. F. E. PECKAM, present by invitation, read a paper on this subject. He said that there was rarely any pain after this operation, although the pulse-rate was usually increased. Goldthwait's method of making extension would be found an improvement.

This comparatively new method of treatment is, of course, of the greatest service in the early stages of the deformity. In cases of paraplegia it is the operation *par excellence*. In one of his cases, a girl of seven years, severe shock had lasted for two or three days after the operation, and the patient had seemed to be at the point of death. The jacket was loosened, and after a few days she recovered. The mistake in this case was in attempting to correct too much of the deformity at one sitting. The second and third operations were not followed in her case by any shock.

DR. HENRY LING TAYLOR, of New York, said that the extravagant claims that had been put forward for this operation had not been fulfilled, but, on the other hand, the extravagant fears of many regarding the dangers attendant upon the treatment had also proved groundless. In all probability progress would be made along the line of gradual reduction and better support for the diseased spine.

DR. NEWTON M. SHAFFER, of New York, said that in disease of the lumbar region a good result could almost always be secured without surgical interference, but in the mid-dorsal region, where there is fixation of the ribs and a normal kyphosis, the forcible reduction of the deformity had a peculiar interest. It should be noted that a good deal of the apparent gain in height was really due to a modification of the compensatory curves, and not to a decided change in the bone itself. It would take at least four or five years to collect sufficient clinical material to determine exactly regarding the permanency of the result.

DR. R. H. SAYRE, said that he thought, in addition to the danger of disseminating tuberculosis after forci-

ble correction of the spinal kyphosis, there was the danger in certain cases from rupture of abscesses and flooding the lung with pus, and also, exceptionally, of rupture of the aorta as it winds around the rigid spine. He had serious doubts as to the wisdom of using much force in the effort to reduce such deformity; the method proposed had long ago passed out of use.

DR. C. C. FOSTER, of Cambridge, said that it should not be forgotten that the spine cannot throw out callus and become solid until the completion of the active tubercular process. It seemed to him that a straight bone would unite just as well, if not better, than a crooked one. It was surprising the amount of straightening of the spine that could be secured by simply utilizing the weight of the body as a means of traction, while the patient lies in bed.

DR. JUDSON said that the revival of this old method of treatment would be likely to lead to one benefit — that is, that special pains would be taken to apply mechanical force properly and continuously.

DR. A. M. PHELPS, of New York, said that he believed every one of these cases would relapse except those operated upon very early, before a large kyphos had formed. Where there was a large gap in the vertebral column this space would not be filled in with bone for the reason that fibrous tissue grows over the ends of the bone and prevents bony union. For this reason he was now wiring all of the spinal processes firmly together. The operation was a very simple one, and consisted in drilling a hole through the upper vertebra above the kyphos, and then weaving this wire in and out until the entire kyphos had been firmly fastened together.

CONGENITAL DISLOCATION OF THE SHOULDER, ETC.; ETIOLOGY AND PATHOLOGY, AND AN OPERATION FOR ITS RELIEF.

Dr. A. M. Phelps, of New York City, read a paper with this title. He said that he believed that the etiology of this condition was traceable to injury occurring *in utero* or at the time of birth, having found evidences of fracture in each case on which he had operated. The joint being dislocated in a growing child, the use of the bone and of the muscles is interfered with, and hence the lack of development. The paralysis he considered to be purely accidental. The head should be exposed by an incision made along the posterior border of the deltoid muscles, curving it somewhat downward. The capsule having been incised and the head of the bone exposed, the latter is cut away and rounded off down to the epiphyseal line. Having done this, the bone is slipped back into the glenoid cavity. The new articulation which has formed should be scraped away, the redundant capsule cut off and the remainder of the capsule stitched up with catgut. He advised dressing the arm in the elevated position so as to secure the ability to raise the arm perpendicularly. These cases must not be confounded with those of obstetrical paralysis.

DR. CHARLES L. SCUDDER, of Boston, said he had seen several instances of what he considered to be true congenital dislocation of the shoulder-joint, and indeed, the physical examination seemed to show a distinct difference in the length of the clavicle on the affected side and in the size of all the bones of the upper extremity. This seemed to be an important factor in determining whether there was congenital dislocation or simply subluxation due to paralysis.

CARIES OF THE SPINE IN ADULTS.

DR. E. G. BRACKETT, of Boston, read a paper with this title. He said that hardly any age seemed to be exempt from caries of the spine. Very few cases occur after the age of forty, nevertheless quite a number are observed between the ages of thirty-five and forty years. In the adult cases that he had observed the disease had usually been in the lower dorsal or upper lumbar region. In the adult, traumatism assumes a different relation to the disease from what it bears in children. In three or four out of his twenty cases the disease seemed to follow a direct strain, and the cases had gone on to the formation of a kyphosis and of abscesses. The earlier symptoms were referred to abdomen, legs and back, most frequently to the latter region. Out of the twenty cases, nineteen complained very early of a distinct pain referred to the lumbar muscles, just above the attachment of the erector spinæ muscles. The pain is increased by activity and by twisting motion. The symptom of stooping was often absent, or not at all prominent. The early symptoms extended over periods varying from two months to two years, and were characterized by more or less distinct remissions. Six out of the twenty cases had large abscesses, two of which opened spontaneously. The question of treatment was not discussed in the paper.

DR. SHAFFER said that he had seen a large number of cases of caries of the spine occurring in persons from thirty to sixty years of age. These cases were almost always traumatic in their origin, and consequently the invasion was not so insidious as in childhood.

DR. RIDLON said that he had seen, since he had been in Chicago, a relatively much larger number of adult cases of spinal caries than he had formerly thought possible. It was worthy of note that these adults had done better than the children.

BIVALVE PLASTIC SPLINT FOR POTT'S DISEASE.

DR. HENRY L. TAYLOR, of New York, read a short paper on this apparatus. He maintained that the plaster jacket is a leverage apparatus, acting essentially like an antero-posterior steel support, and urged that similar principles should be followed in its construction and application. The ordinary jacket, made strong in front and solid at the edges, is provided with strips of felting either side of the spinal procewith hind, and across the inside of, at the front andes bebottom. While still fresh, the jacket is cut in and illary line by two straight incisions into an anaxand posterior half, whose breadth is somewhat diminished by paring away the sides. The bivalve splint is then trimmed and provided with at least four straps and buckles on each side, or one side may be fastened by a leather hinge. The advantages were cleanliness, avoidance of excoriations, adjustability and precision.

SOME EXPERIMENTS WITH THE CELLULOID BANDAGE.

DR. AUGUSTUS THORNDIKE, of Boston, said that in making jackets of celluloid he had used a paste made by dissolving celluloid in acetone, to paint upon gauze bandages on a cast. These jackets were satisfactory, but required to stiffen them many coats of paste, and as each coat shrank in drying the jackets were always too short, and several days were required to make one.

A SIMPLE WATER-PAD FOR THE PREVENTION OF BED-SORES.

DR. ANSEL G. COOK, of Hartford, said that a simple and inexpensive water-bed could be improvised out of four ice-bags stitched together in a cloth.

LANTERN-SLIDE DEMONSTRATION OF INSTANTANEOUS PHOTOGRAPHS OF THE GAIT OF CHILDREN IN CERTAIN FORMS OF PARALYSIS.

DR. W. N. BULLARD, of Boston, gave a lantern demonstration of the work he had done, with the assistance of Dr. G. W. Fitz. A double rotating shutter was used in making the exposure. The shutters rotated in opposite directions, and each had two apertures in it. They were operated by clock-work, and gave an exposure of one-fiftieth of a second, and an interval between the exposures of one-fifth of a second. In front of these rotating shutters was placed an ordinary pneumatic shutter. A dead-black cloth was arranged as a background, and as a covering for the portion of the floor embraced in the range of the lens. The rotating shutters having been set in motion, the child was directed to walk or run across the room. When it reached the desired point the pneumatic shutter was opened, and held open until the child had reached the farther limit of the field, when it was closed and the rotating shutter stopped.

SOME OBSERVATIONS ON TUBERCULOUS JOINT DISEASE IN COLORADO.

DR. GEORGE B. PACKARD, of Denver, read the paper. He said that from the fact that a large proportion of the adult population in Colorado is tuberculous one would expect tuberculous-joint disease to be very common among their offspring, but, as a matter of fact, it was much less frequently observed than in the East. The undoubted inherited tendency seemed to be checked by the climatic environment, but as quite a large proportion of the adult population in Colorado had arrested tuberculosis, it required but slight traumatism to arouse the disease to activity. Experience shows, however, that the disease runs a milder and shorter course than in the East. These favorable differences he attributed to the abundant sunshine, dry air and general climatic conditions which made it possible for the people there to spend the greater part of their time in the open air.

A NEW TRACTION APPARATUS FOR THE TREATMENT OF CLUB-FOOT.

DR. NEWTON M. SHAFFER, of New York, exhibited a new traction apparatus that he had devised, the essential feature of which was the placing of the centre of motion *below* the foot.

THE ANTERIOR ACHILLIS-BURSA ASSOCIATED WITH EXOSTOSIS A POSSIBLE FACTOR IN ETIOLOGY.

DR. C. F. PAINTER, of Boston, present by invitation, read this paper. He said that he had seen eight of these cases, all in adults. On either side of the tendon there was a tender swelling, and walking on the bare feet was impossible. The affected area is hyperemic and the surface temperature elevated. In the two cases operated upon there was profuse capillary hemorrhage, suggesting the venous stasis of inflammation. The disease runs an essentially chronic course, and apparently has no connection with any acute infective process. The patients had been completely relieved by treatment, but had completely relapsed within a few months. The cause, therefore, seemed to be a constitutional one. In the acute stage the treatment should be rest, heat and the application of a bandage.

CONGENITAL DISLOCATION OF THE HIP-JOINT.

DR. E. H. BRADFORD, of Boston, presented a paper on this subject. He said that the observation of adults with congenital dislocation of the hip had satisfied him that such a condition meant a life of disability, though not of complete helplessness. The hips can be replaced under the age of five years, but they show a strong tendency to slip out of position within a few months. By exploratory incisions in these cases of relapse it had been determined that failure in treatment was due to the falling in of the capsule, or by the cotyloid ring being too small for the neck. The difficulty with the bloodless operation was that it was not a certain one. With the cutting operation there was always a certain amount of danger of infection, because the wound was necessarily large, and the drainage imperfect. The wound should therefore be made as small as possible and every possible precaution taken against infection.

DR. WHITMAN said that before the introduction of the bloodless method he had found great difficulty in securing consent to operate, and that now as the bloodless method enabled him to operate upon children as early as fifteen months of age, he would certainly prefer this method as the first step in the treatment. He did not believe that the obstacles mentioned in the paper really existed.

THIRD DAY.

AN OPERATION FOR THE CORRECTION OF WEB-FINGERS.

DR. G. G. DAVIS, of Philadelphia, with the aid of diagrams, described a new method in making the flaps in operating upon web-fingers.

DR. GIBNEY said that he had found the most satisfactory operation is that in which an incision is made along the dorsum and palmar aspects of the adjoining finger and the flaps brought around and united.

DR. GOLDTHWAIT recommended cutting a sufficient flap from any convenient place, and then covering the raw surface with Thiersch grafts. This entirely prevented the formation of the disagreeable cicatrix.

ADENOIDS AS A CAUSAL FACTOR IN DEFORMITY.

DR. F. S. COOLIDGE, of Chicago, presented a very suggestive paper on this subject, chiefly from the standpoint of prophylaxis. He took the position that adenoids were probably the cause of tubercular infection in some cases of joint disease.

DR. HENRY L. TAYLOR alluded to the relation between the absorption of poisons by the throat and the development of acute torticollis.

DR. SHAFFER spoke of a case of *petit mal* in which the seizures had been very markedly influenced by the removal of the adenoids.

GROWTH IN SPONDYLITICS.

DR. HENRY L. TAYLOR, of New York, said that a striking result of Pott's disease was its dwarfing effect. Growth in height is diminished by loss of substance, deformity and malnutrition. The degree of retardation will depend in a given individual on the age of invasion, the location, amount, severity and duration of the disease, and the hygienic and surgical man-

agement of the case. The ultimate result is usually a height and weight considerably below the normal. In early cases of average severity and duration, growth is much retarded up to the fourteenth year, from an inch and a quarter to an inch and a half being a fair rate, instead of the normal two inches and upward. As the rate of increase in stature and weight afford valuable information in regard to the condition and progress, and practical aid in the treatment of these cases, it was suggested that measurements of the standing and sitting heights (and weights) of spondylitics should be recorded from two to four times yearly. Such measurements, covering a series of years, would be particularly useful in enabling one to judge of new methods of treatment as, for example, the method of forcible reduction.

VENEREAL ARTHROPATHIES.

DR. STEWART L. MCCURDY, of Pittsburgh, read a paper with this title.

AN OPERATION FOR UNUNITED FRACTURES OF THE NECK OF THE FEMUR.

DR. ARTHUR J. GILLETTE, of St. Paul, read a paper on this subject. The paper contained a report of three successfully treated cases of ununited fracture of the neck of the femur, in which the ends of the fracture were denuded and the bones placed in apposition and held in position with bone pegs.

ELONGATION OF THE LIGAMENTUM PATELLÆ AS A FACTOR IN THE PRODUCTION OF HEY'S INTERNAL DERANGEMENT OF THE KNEE-JOINT.

DR. N. M. SHAFFER said that there could be an elongated ligamentum patellæ without subluxation of the semilunar cartilage, provided there was not much lateral mobility. In these cases the tubercle of the tibia is often situated considerably to the outside of its usual position. The object of his treatment had been to allow only of antero-posterior motion, and it had succeeded admirably.

VOLUNTARY LATERAL DISLOCATION OF THE KNEE IN INFANTS.

DR. AUGUSTUS THORNDIKE, of Boston, described two cases in infants, about one year old, in which the ligament allowed considerable lateral and rotary motion in the straight knee. When the knee was flexed from 20° to 45° the voluntary lateral dislocation could be produced with an audible snap. The dislocation could be produced by flexing to a right angle or extending the knee. The treatment by a simple hinge-splint had yielded well in one case after three years.

A REPORT OF A CASE OF SPONTANEOUS DISLOCATION OF THE HIP DURING TYPHOID FEVER.

DR. L. A. WEIGEL, of Rochester, reported such a case occurring in a girl of eight years, in the sixth week of typhoid fever.

BED-POSITION AS AN ETIOLOGICAL FACTOR IN SPINAL CURVATURE.

DR. G. W. FITZ, of Boston, discussed the subject briefly with the aid of lantern slides. He said that sleeping upon the same side habitually tends to fix a curve of the spine by favoring the growth of the bone and ligaments on one side, and retarding the growth on the other.

DR. W. R. TOWNSEND, of New York, was elected President, and DR. JOHN RIDLON, of Chicago, Secretary of the Association for the ensuing year.

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THE ARRIVAL OF THE "BAY STATE."

THE hospital ship *Bay State* reached Boston August 30th, from Santiago, having on board forty men from the Second and sixty-one from the Ninth Massachusetts Regiments. There were but three deaths, all from the Ninth Regiment, one from dysentery before the vessel left Santiago harbor, and the other two from typhoid fever on the first day out. Dr. Herbert L. Burrell, the surgeon in charge, to whom we are indebted for the following details, said that all the men taken on board at Santiago were in a pitiable condition, many of them delirious from exhaustion and fever. Thirty-two of the number were regarded as dangerously ill, but all improved marvellously on the journey, as a result of the more salubrious air and unremitting attention of the medical and nursing staffs. Owing to the wretched condition of the patients, it was thought that many would succumb on the voyage, an anticipation which, fortunately, was not realized. The soldiers suffered mainly with typhoid and a pernicious form of malaria, which was not infrequently accompanied with cerebral symptoms, such as aphasia and paralysis. There was no yellow fever, contrary to certain rumors which had spread before the arrival of the ship.

Although much prostrated by the great heat and unusual climatic conditions in Cuba, there was, fortunately, no serious illness among the physicians and nurses. Had they been obliged to stay another week, however, Dr. Burrell felt sure that many of them would have broken down, so great was the strain upon persons unaccustomed to the climate. A panic among the sailors was narrowly averted on the homeward voyage, due to the fear of yellow fever, which was aggravated by the prevalence of diarrhea. Vigorous measures and active treatment, combined with cooler weather, prevented what, under other circumstances, might have been an exceedingly unpleasant, if not actually disastrous, occurrence.

Dr. Burrell brings back a report of the condition of things at Santiago, which forces one to think that the daily press has in this, at least, not been led into any over-extravagant statement. The town is practically in a state of panic, and the fear of yellow fever is extreme. As a matter of fact there are comparatively few cases in the city proper, though it is prevalent at Siboney, in spite of General Miles's precautions. Some of the outlying Spanish camps are also said to be infected. Means of communication are exceedingly imperfect in the city and must interfere greatly with its adequate government and the proper embarkation of the sick. It was twenty-four hours before Dr. Burrell could get word to the palace (headquarters of the provisional government) that he was ready for the reception of the sick soldiers.

On the arrival at the wharf in Boston admirable preliminary arrangements made the work of disembarkation easy, and the soldiers, though still feeble and many of them unable to walk, were quickly and comfortably sent to the City and Massachusetts General Hospitals. The soldiers are warm in their praise of the treatment accorded them on the trip, and we learn with pleasure that their general condition bears ample testimony to the care they have received.

It is a source of the heartiest congratulation that the *Bay State* has more than justified the pains taken in her equipment, and demonstrated conclusively what may be done in the transportation of the sick, with skilled medical direction and careful nursing.

THE RESPONSIBILITY FOR THE CONDITION OF OUR SOLDIERS.

The American people, having undertaken a war known to involve great losses of life from climatic conditions, and finding that the natural result has occurred, and that great mortality has resulted among the troops, is naturally overwhelmed by an immense wave of sympathy for the soldiers and demands a strict accounting from any of the officials who may have been responsible for any unnecessary sickness, suffering and death.

There is now no question that a Congressional investigation of the conduct of the war will take place, and it is well that the investigation should be held by Congress, as an investigation by a board appointed by the Secretary of War might be open to suspicion of unduly favoring that official.

In such a procedure as this, the American people should not forget the fact that the country itself, as represented by Congress, may be found guilty of a not inconsiderable share of the responsibility for the evils which have occurred. As recently noted editorially in the *Boston Transcript*, "Surgeon-General Sternberg in a letter to the *Army and Navy Journal*, published recently, stated that he begged and implored Congress to give him power to increase the medical corps of the army to a real war footing, and that one of the last acts of that body previous to its adjournment was to reject the project he had drawn up with great care. Had he been given the power he asked for, he believes he could have made such an expansion of the medical service of the army that much suffering and great expenditures would have been prevented. Commissary General Eagan points out to a critic of his department that the army ration is regulated by Congress, that it is in the law of the land which neither he nor any other officer has a right to alter, however much they may think the dietary of the soldier unfitted to a peculiar service.

To quote the apt phrase of the editor, "It is as important to get at the truth as to get at Alger."

The policy which has been for thirty years persisted in by Congress, of maintaining the army on the smallest possible footing, and grudging the expenditure of a dollar to increase its numbers or efficiency, will, we suspect, be found to be largely responsible for the present unfortunate conditions. The machinery for taking care of a few scattered regiments of regulars doing police duty on our western frontier cannot be expanded in a few weeks so as to adequately provide for an army of 200,000 men. Nor can such an army, hastily recruited of undisciplined volunteers, have one-half the efficiency of regular troops. If this war has demonstrated any one thing, it is that it is the regular troops upon which we must depend to fight the battles of the nation.

It is the discipline of the men who know their business, who have been trained to fighting, and what is not less important, to camp life, upon whom the brunt of the campaign has fallen. It is largely to the lack of knowledge of the principles of camp sanitation, or at least the lack of enforcement of these principles by the volunteer officers, that the spread of typhoid in our camps has been due.

There is food for reflection in the fact that it is the regulars who win our battles, and the volunteers who bring sickness into the camps by poor discipline and careless living, which fact, however, does not prevent the volunteers from coming in for the lion's share of glory and public sympathy.

Our national policy of continuing in time of peace as if we were never going to need an army has, it is to be hoped, received its death blow. Unless we can feel assured that we as a nation shall in future have to undertake no further wars of humanity it would be well for us to remember in time of peace to prepare for war. Then if war again becomes inevitable, we shall have a war department adequate to the care of large bodies of troops, one to which problems of transportation, supplies and medical care shall be comparatively simple, and by which sanitation as applied to large bodies of troops is thoroughly understood. We shall also have an army equipped and disciplined for immediate effective service, and not be compelled to resort to the hasty, ineffectual, expensive and fatal necessity of hastily equipping and organizing volunteers.

MEDICAL NOTES.

A MONUMENT TO CHARCOT.— The monument to Charcot will be formally unveiled in the Saltpêtrière in Paris on October 23d.

PROFESSOR MOSSO HONORED.— Professor Mosso, of Turin, has been elected a correspondent of the Paris Academy of Sciences in the section of medicine and surgery.

APPOINTMENT OF DR. ZOGRAF.— Dr. Zograf has been elected extraordinary professor of zoölogy, and Dr. Mrensbier, extraordinary professor of comparative anatomy in the University of Moscow.

PLAGUE IN BOMBAY. — It is reported that there were 2,300 deaths from the plague last week in the Bombay presidency. The epidemic is spreading and there has been a fresh outbreak in the State of Hyderabad.

A GIFT TO THE HOSPITAL SAINT-LOUIS.— Madame Péan, in accordance with the wishes of her husband, has presented to the Hôpital Saint-Louis, Paris, his valuable collection of anatomical and pathological casts.

WALDEYER AND LEYDEN APPOINTED — Waldeyer, professor of anatomy in Berlin, has been made rector of the University for the year 1898–99. Professor Leyden has been appointed dean of the medical faculty.

A MONUMENT TO PROFESSOR MEYER. — The monument to Prof. Wilhelm Meyer, the discoverer of post-nasal vegetations, will be unveiled in Copenhagen during October. An address will be made by Sir Felix Simon.

GROWTH OF THE BRITISH MEDICAL ASSOCIATION. — The report of the Council of the British Medical Association shows that the number of members is 17,746, an increase of 791 since last year. The number of new members, 1,473, is the largest recorded in any one year since the Association was founded.

A LOSS TO THE PEPPER LABORATORY. — By a recent codicil to the will of the late Dr. Pepper, a bequest of $75,000, as an endowment of the William Pepper Laboratory, of the University of Pennsylvania, was revoked, and the amount given to the department of archeology and paleontology of the same university, for the purposes of the university museum.

LEPROSY IN RUSSIA — We learn from the *Philadelphia Medical Journal* that a commission recently sent by the Prussian Government to report on leprosy in Eastern Russia reports the number of cases to be about 5,000. The disease has been prevalent for about 100 years and seems to be confined to the southern and eastern parts of the country. The treatment of the disease in isolation hospitals has proved most successful.

COSMOPOLITAN OSTEOPATHY.—The so-called "Cosmopolitan Osteopath" makes the following statement: "Osteopathy has no war with surgery. Surgery is an established science, and we believe that surgery and osteopathy should go hand in hand, and that the two can safely master every curable disease known to mankind. Surgery and osteopathy is a grand combination, and the osteopath and the surgeon combined can conquer all forms of disease."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, August 31, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 15, scarlet fever 11, measles 9, typhoid fever 21.

A FATAL RATTLESNAKE BITE.— A young woman, whose employment was that of a so-called "snake-charmer," was bitten in the hand August 28th, at noon, by a rattlesnake which she was handling. She was taken to the City Hospital, but all attempts to save her life were unavailing, and she died at 11.15 in the evening of the same day. She was very much prostrated when she reached the hospital.

THE HOSPITAL SHIP "OLIVETTE." — A visit to the hospital ship *Olivette*, on her arrival in Boston last week, showed that every possible arrangement had been made for the care and comfort of the sick soldiers, whose quarters were clean, comfortable and in excellent condition. To Major Appel of the Army Medical Service, who was in charge of the ship during the trip, is due the credit for the good care received by the soldiers on the trip. He was hampered in his work by inability to procure a sufficient number of competent male nurses. The *Olivette* sailed for Fernandina, Fla., on August 25th, having been fitted out with supplies while at this port, by the Massachusetts Volunteer Aid Association.

DR. H. P. BOWDITCH AT EDINBURGH.— On the occasion of the conferring of honorary degrees at Edinburgh, at the recent meeting of the British Medical Association, the Dean of the Faculty of Law, introducing Prof. Henry P. Bowditch, said: "The Metropolitan University of Scotland rejoices to offer her degree to one who is justly regarded as a pioneer and leader of scientific enterprise in the United States of America. The researches which the distinguished tenant of the chair of physiology in Harvard University has himself prosecuted have added not a little to the advancement of that science, notably those into the laws regulating the growth of children, the force of ciliary motion, and the innervation of the vascular system. But, more than this, he has stimulated others to carry on research, and has so efficiently trained his countrymen in the most approved methods that we are justified in largely attributing to his influence the present position of the American school of physiologists. I now beg you to confer upon the distinguished American the Honorary Degree of Doctor of Laws."

DANGER OF TYPHOID AT CAMP WIKOFF. — Dr. Nicholas Senn is reported as stating that there is great

danger of an outbreak of typhoid at Camp Wikoff unless the troops are soon removed to other encampments. The danger is due to an inevitable pollution of the water-supply.

A NEW HAMPSHIRE HOSPITAL TRAIN. — A hospital train is to be fitted out by the New Hampshire Soldiers' Aid Society, and to start at once for Chickamauga to bring back the fifty New Hampshire soldiers who are said to be at the division hospital there.

NEW YORK.

DEATHS FROM HEAT. — On August 25th there were eleven deaths directly attributable to the excessive heat and humidity. The effects of the long-continued hot wave are seen in the augmented mortality of the city. In the Boroughs of Manhattan and the Bronx the number of deaths reported increased from 96 on August 20th, to 150 on August 25th.

DEATHS IN NEW YORK STATE IN JULY. — The report of the State Board of Health for the month of July, just made public, shows that during the month there were 11,441 deaths in the State. Following the month of almost the lowest mortality, the bulletin says, July is always the month of largest mortality of the year. The present reported mortality is 2,800 in excess of that of the month preceding. This increase is chiefly in deaths from diarrheal diseases, from which 2,000 more deaths occurred than in June, and in deaths credited to other diseases of the digestive organs. The mortality of early life upon which these diseases chiefly fall was double that of June. The relative zymotic mortality is likewise doubled, but in diseases other than diarrheal there is no variation. Compared with the month of July of former years, there were 200 more deaths than in that month in 1897, which owing to the comparatively low temperature prevailing, was an unusually healthy July, but the deaths occurring this month are fewer than the average of the past ten years. The diarrheal mortality is less even than last year, and the increase has been in deaths from local diseases. Diphtheria caused 150 deaths, or about one-half the normal average for this month and outside the metropolis there were only 36 deaths from it. Small-pox has occurred, one case in the town of Livonia and four or five in the town of Waverly, possibly traceable to sources heretofore reported in the central part of the State. All have the mildness characteristic of other cases reported. The total number of deaths in New York City during the month were 6,858, of which 3,609 occurred in Manhattan Borough, 2,441 in Brooklyn, 332 in the Bronx, 318 in Queens, and 158 in Richmond.

OPENING OF FIRST FREE GYMNASIUM. — The formal opening of the first free gymnasium in the city of New York, which is to be known as the Hudson-bank Gymnasium and Playground, took place on August 27th under the auspices of the Out-door Recreation League, who fitted up the grounds. A large and appreciative crowd was present, and athletes who took part in the exercises were furnished by a number of clubs. The gymnasium is situated on the old Stryker estate at Eleventh Avenue and 53d Street, and running back to the Hudson River. The superintendent is F. J. Cartwright, formerly connected with the gymnasium of Yale University, and the kindergarten department is under the charge of an experienced teacher. It is hoped and expected that the city, in worthy imitation of the Boston authorities, will eventually take charge of the gymnasium and playground, and also provide facilities for ocean bathing to the poor.

A PUBLIC RECREATION PIER. — The third public recreation pier on the East River was opened, with a band of music in attendance, on August 27th, at the foot of East 112th Street. It is 205 feet long, 32 feet wide, and cost $30,000. The district adjoining the pier is principally inhabited by poor Italians.

MISS HELEN GOULD'S GIFT. — Miss Helen Gould, daughter of the late Jay Gould, has given $5,000 to the Manhattan Eye and Ear Hospital for the endowment of a free bed.

HELP FOR SICK SOLDIERS. — The public mind seems to be thoroughly stirred up by the sufferings of our sick and wounded soldiers, and each day develops some new effort for their relief. Miss Gould, after having made two personal visits to the camp at Montauk Point, recently made a donation of $25,000, to be employed by the Women's National War Relief Association, and Mr. H. M. Flagler has given $5,000 to the National Red Cross Relief Committee. On August 27th the steamer *John Lenox* was sent to Camp Wikoff with an assorted cargo of hospital supplies by the Merchants' Association of New York, and on the 29th, Col. John Jacob Astor's large yacht Nourmahal arrived with supplies provided by the summer residents of Newport.

A NEW HOSPITAL FOR THE TROOPS. — In view of the proposed transfer of sick New York troops to Fire Island, which it will be remembered was purchased by the State at the time of the cholera scare a few years ago, Dr. Doty, Health Officer of the Port, has sent word to Governor Black that he can prepare the hotel, cottages and grounds on the island for the reception of five or six hundred convalescent and sick soldiers, and provide a sufficient corps of nurses within one week. He also offers to attend to the sanitary arrangements, water-supply, etc., and keep the camp under his personal observation, inasmuch as the State property at Fire Island is within the jurisdiction of the Health Officer.

POISONING BY ICE CREAM. — Three deaths and thirty-two serious cases of illness, were recently caused by ice cream at a summer boarding-house at Greenfield, in Ulster County. An investigation is in progress, but it has not yet been determined whether the trouble was caused by ptomaines or by poisonous matter in the lemon extract with which the ice-cream was flavored. It is stated that the extract was purchased from a strolling peddler.

METEOROLOGICAL RECORD

For the week ending August 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...14	30.24	67	74	61	63	68	66	N.W.	S.E.	8	3	O.	C.	
M..15	30.23	71	76	66	79	74	76	N.E.	S.	3	9	O.	C.	
T...16	30.08	74	85	62	77	82	80	S.E.	S.W.	7	14	C.	O.	
W..17	29.95	78	89	67	78	86	82	S.W.	S.W.	12	5	O.	O.	
T...18	29.97	76	85	67	78	78	78	N.W.	S.W.	10	5	C.	O.	1.03
F...19	29.93	70	74	65	95	90	92	W.	N.	3	9	R.	O.	
S...20	30.01	68	73	61	77	63	70	N.W.	W.	9	6	C.	C.	.59
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 20, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Whooping-cough.
New York . .	3,438,899	1341	684	25.20	9.24	20.30	1.26	1.19
Chicago . .	1,619,226	—	—	—	—	—	—	—
Philadelphia .	1,214,256	—	—	—	—	—	—	—
St. Louis . .	570,000	—	—	—	—	—	—	—
Baltimore . .	550,000	276	177	5.04	5.04	—	72	.36
Boston . .	517,732	282	149	28.00	7.60	24.15	1.75	.35
Cincinnati . .	405,000	64	—	7.80	7.80	3.12	1.56	—
Cleveland . .	350,000	—	—	—	—	—	1.04	—
Pittsburg . .	285,000	—	—	—	—	—	—	—
Washington . .	277,000	112	40	20.47	12.40	8.02	8.90	2.67
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	69	36	46.40	8.70	36.25	2.90	4.35
Nashville . .	87,754	21	6	9.52	4.76	4.76	4.76	—
Charleston . .	65,165	—	—	—	—	—	—	—
Worcester . .	105,050	45	26	46.62	2.22	31.08	—	8.88
Fall River . .	98,919	54	40	62.90	9.25	61.05	—	—
Lowell . . .	87,193	44	27	38.57	15.89	29.51	—	4.54
Cambridge . .	86,812	36	23	45.24	15.08	30.47	—	2.77
Lynn . . .	65,220	—	—	—	—	—	—	—
New Bedford .	62,416	36	25	41.55	5.54	34.78	—	2.77
Somerville . .	57,977	30	22	63.27	—	46.62	3.33	3.33
Lawrence . .	55,510	38	20	57.86	5.26	49.97	2.63	—
Springfield . .	54,790	15	8	39.99	16.66	26.66	—	6.66
Holyoke . . .	42,364	20	11	55.00	10.00	35.00	5.00	—
Salem . . .	36,062	12	7	25.00	16.66	25.00	—	—
Brockton . .	35,353	5	4	40.00	—	40.00	—	—
Malden . . .	32,891	15	8	52.22	26.66	52.22	—	—
Chelsea . . .	32,716	11	4	—	9.09	—	—	—
Haverhill . .	31,406	13	6	35.70	14.28	28.56	—	—
Gloucester . .	29,775	—	—	—	—	—	—	—
Newton . . .	28,990	11	4	27.27	—	27.27	—	—
Fitchburg . .	28,392	6	4	16.66	—	16.66	—	—
Taunton . . .	27,812	19	9	26.30	5.26	26.30	—	—
Quincy . . .	22,562	7	3	42.84	14.28	42.84	—	—
Pittsfield . .	21,891	—	—	—	—	—	—	—
Waltham . . .	21,812	6	3	16.66	33.33	16.66	—	—
Everett . . .	21,575	4	1	—	—	—	—	—
North Adams .	19,135	7	5	42.84	28.56	42.84	—	—
Chicopee . .	17,368	7	5	28.56	—	28.56	—	—
Medford . . .	16,832	5	3	60.00	—	60.00	—	—
Newburyport .	14,794	2	2	—	—	—	—	—
Melrose . . .	11,963	5	3	60.00	—	60.00	—	—

Deaths reported 2,537: under five years of age 1,373; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 736, consumption 232, acute lung diseases 127, diarrheal diseases 587, typhoid fever 43, whooping-cough 34, diphtheria and croup 33, cerebro-spinal meningitis 17, scarlet fever 10, measles 7, erysipelas 5.

From diphtheria and croup New York 13, Baltimore 8, Boston and Cincinnati 2 each, Washington, Providence, Lowell, Somerville, Lawrence, Springfield, Holyoke and Haverhill 1 each. From cerebro-spinal meningitis New York 6, Worcester 3, Somerville and Holyoke 2 each, Baltimore, Boston, Providence and Lowell 1 each. From scarlet fever New York 5, Boston 2, Baltimore, Fall River and Lawrence 1 each. From measles New York 6, Baltimore 1. From erysipelas New York 5.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending August 13th, the death-rate was 20.5. Deaths reported 4,410; acute diseases of the respiratory organs (London) 171, diarrhœa 902, measles 74, whooping-cough 67, diphtheria 43, scarlet fever 25, fever 16.

The death-rates ranged from 13.7 in Blackburn to 29.1 in Preston; Birmingham 21.5, Bradford 7.2, Cardiff 15.0, Gateshead 14.6, Hull 18.4, Leeds 22.2, Liverpool 27.7, London 20.5, Manchester 21.0, Nottingham 15.5, Portsmouth 21.8, Sheffield 24.9.

TREASURY DEPARTMENT, OFFICE SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

WASHINGTON, D. C., August 25, 1898.

A board of officers will be convened at Washington, Wednesday, November 9, 1898, for the purpose of examining candidates for admission to the grade of assistant surgeon in the U. S. Marine-Hospital Service. It is desired that applications for this examination be made before November 1st.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: (1) physical, (2) written, (3) oral, (4) clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations on the cadaver.

Successful candidates will be numbered according to their attainments on examination and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After five years' service assistant surgeons are entitled to examinations for promotions to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive sixteen hundred dollars, passed assistant surgeons two thousand dollars, and surgeons twenty-five hundred dollars per year. When quarters are not provided commutation at the rate of thirty, forty or fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service.

The tenure of office is permanent. Officers travelling under orders are allowed actual expenses. For further information or for invitation to appear before the Board of Examiners, address

SUPERVISING SURGEON-GENERAL,
U. S. Marine-Hospital Service.

ANOTHER CORRECTION.

Our attention is called to the fact that the Children's Hospital published, in 1895, an elaborate report on the general plan of those of the Boston City Hospital. Our note was, however, correct, inasmuch as it referred to the publication of annual reports, which so far have been issued only by the hospitals named.

RECENT DEATH.

HENRY C. BOWEN, M.D., M.M.S.S., surgeon of the Second Massachusetts Volunteers, whose death has been reported at Santiago, was a resident of Springfield for the four years previous to his enlistment with the Second Regiment. He was born in Castle Creek, N. Y., in 1868. He entered the University of New York and graduated with honors in 1892. He entered Bellevue Hospital in New York as house-surgeon. He was also connected with the Broome Street Lying-in Hospital in New York. While in that city he was a member of the Board of Health. Dr. Bowen went to Springfield about four years ago and had devoted himself with ability and success to surgical work. He was a member of the active staff of surgeons at the House of Mercy Hospital and of the Hampden District Medical Association. He leaves a father and mother and one sister, all living in Westfield.

Lecture.

TALKS ON THE HISTORY OF MEDICINE.[1]

No III. — Anatomy: Vesalius.

BY DAVID HUNT, M.D., BOSTON.

In our previous talks we have seen that medicine was among the ancients and through the Middle Ages simply a branch of general philosophy; we have described this condition as existing all through the sixteenth century, at least as far as physiology is concerned. We propose in this present session to describe another movement, which, it is commonly stated, began with Galen. At the beginning we must differ from these prevailing views. Galen was in no proper sense the founder of anatomy, any more than Paracelsus was the founder of physiology. Galen began the study of anatomy not as an observer but as holding certain preconceived notions, some his own, but mostly borrowed from the ancients who had preceded him. Aristotle and Herophilus furnished him much material, but his views were made up chiefly of a mixture of the ideas of Aristotle and the new thoughts which the Alexandrians had evolved, principally from the current notions of their great leader, Plato.

The rough attempts of the scholars of Salerno on pigs and the later attempts of Mundinus upon his scant human material were wholly in the spirit and manner of Galen. Many misunderstandings have resulted from the attempts to regard Mundinus as the restorer of real anatomy; these we shall have occasion to notice farther on, and we can then also pay more attention to the causes of the persistence of these notions up to our own time. We shall be able here, as in the history of the sixteenth-century physiology, to confine our attention mostly to Padua. Without going beyond the bounds which limit us here, we would refer to the works of Symonds upon the period of the Renascence for a detailed account of the manner in which the liberalism of the Court of Frederic II was made the spirit of northeastern Italy. We have only to consider the fact that Padua was the intellectual capital of the district, although in many material aspects it was simply a dependency or suburb of Venice. We may recall the fact that Frederic was the author of the edict which required of all physicians and surgeons a study of human anatomy. Mundinus was a creature of this influence, although fate determined that his beginnings should be made in the neighboring school of Bologna. Montagnana, in 1444, speaks of a number of dissections which he had witnessed at Padua. Mundinus had by this time become a classic in Italy, as Guy de Chauliac, of Montpelier, had in France; each became media, in their respective spheres of influence, through which the physicians and surgeons viewed Galen. In the further development of anatomy in Italy by Barengarius de Carpi, the spirit of the work of Galen was as dominant; no error striking enough to cause any weakening of the influence of Galen was discovered. It was the same with Achillini, famous as a disputant (*aut diabolus aut magnus Achillini* was a tribute to his powers in disputation); he brought no change in method. Alexander Benedictus, of Padua, marks a higher tide of the Galenical study of man's organism in his "Historia Corporis Humani." His quotations are more classical; he makes a more select mention of philosophers and poets and, as a whole, his text shows something of the formal development of taste, just as the plates of Johann de Ketham exhibit the same influence in the department of pictorial art. The humanistic movement was in full swing and these were its manifestations in anatomy; it touched the outside — the form of medicine — it did not work in it a "new spirit." It strengthened the worship of Galen, it exhibited him in a new light as a "classic." Learning found a new delight in rescuing him and the rest of the ancients from the "barbarism" of the Arabic and scholastic commentators. An exactly similar movement was going on in Paris, the great rival of the Paduan school. William Cope and the two teachers of Vesalius, John Guinterius and Jacob Sylvius, were, with the formal polish of the time added, types of the same slavery to Galen as that which held Mundinus and Guy de Chauliac.

Vesalius is the founder of modern anatomy; he was the first man who formed an idea of the full meaning of a knowledge of the structure of man's body and had courage, strength and patience to convert this idea into a reality. In view of the fact that the worthiest notice of Vesalius, in English, is by laymen — men who with all their scholarship wrote with only the deceptive annals of copyists for sources, and without the technical interest which practice of our art alone can furnish — I make no apology for a considerable compend from the recent biography of Vesalius by Professor Roth of Basle.

Vesalius was born in Brussels, capital of Brabant, on the 31st of December, 1514, or January 1, 1515. His family were originally named Witing and were located at Wesel in Cleve; later they settled at Nymwegen and changed their name, thinking of their old home, to Vesalius. The three weasels (Flemish Wesel) in the arms of Vesalius is a play upon this circumstance.

Vesalius came from a generation of doctors; his great-great-grandfather Peter wrote a comment upon the fourth Feniculus of Avicenna; he caused copies to be made at great expense of many celebrated medical manuscripts. *His* son John was physician to Maria of Burgundy, wife of Maximilian First, and taught medicine at Louvain. The Vesalius family remained connected with the Austrio-Burgundian rulers. Eberhard followed his father, John, in his place of physician to Maria of Burgundy, but he died as a young man. Eberhard, grandfather of Vesalius, wrote famous commentaries on Rhases and on portions of the "Aphorisms" of Hippocrates; besides he was an excellent mathematician and wrote much upon mathematical subjects. Andreas Vesalius, the father of the great Vesalius, was body physician to Charles V and accompanied him in many travels and campaigns. During the truce at Nizza in 1538 he laid some of his son's first anatomical plates before the emperor and thus began to prepare the son's way to the court. The father appears to have made the French-Guelder campaign with the emperor during the years 1542–1544; at any event, he was royal apothecary. He died, at the latest, in 1546, leaving his widow, Isabel, to aid Vesalius, in obtaining for him the privilege for printing his great work; this she sent to him, at Basle, in 1543.

[1] A course of four lectures delivered by invitation before the Harvard Medical Alumni Association, February, 1898.

Little is known of the youth of Vesalius; he himself tells how, in learning to swim, he noticed the arrangement of the fibres in the coats of the bladders which he used. He attended school at Louvain, and later he speaks with scorn of his theological teacher, who dosed him, *ad nauseam*, with superstitions which he illustrated by the use of the plates of the "Margerita Philosophica" when attempting to teach him of Aristotle's "De Anima." When he was fourteen he attempted to get an idea of human anatomy by reading Albertus Magnus and Michael Scotus; and he dissected mice, moles, rats, dogs and cats. In 1533 he went to Paris, where the young men of Europe were flocking to study under the great Jacob Sylvius. As many as four hundred scholars congregated at a session; Johannes Guinterius of Andernach also taught him at Paris. Jacob Sylvius, of Amiens, was an excellent scholar in Latin, Greek and Hebrew; he was author of a French grammar. When he began his medical lectures in Paris he was over fifty years old and he considered his Galen infallible; to him Galen's "De Usu Partium" was God-like, and progress beyond the limits which Galen had established was simply impossible.

Guinterius, of Andernach, began his life in Paris in 1527; he at first lived from the proceeds of his translations of various Grecian writers. Vesalius, at a later period, embittered by the attacks of his old teacher, says that he never saw him with a knife in his hand except at the table.

At that time the public dissections in Paris, and it was much the same in Italy, lasted three days. The dissecting was performed mostly by barbers. No muscles excepting those of the abdomen were shown; there was no osteology; no arteries, veins or nerves were demonstrated. In the midst of these conditions Vesalius, fired by the curiosity which he had felt in his boyhood, with dim conceptions wakened, no doubt, in the "doctor" surroundings and traditions of his home, found himself thwarted on every hand by lack of material and by the pedantry of his teachers. Under these circumstances Vesalius swore that human anatomy should become the work of his life and that he would comprehend it. It was at this period that he nearly lost his life in his struggle with the dogs who fought him for the bones which he attempted to collect at Mountfacon. In 1536 Guinterius published a neat little sketch of anatomy, in which he gave a concise account of the facts which Galen had enumerated. The students had up to this time been referred to Mundinus, Guy de Chauliac, Alexander Benedictus and Barengarius. Several of these writers, following accounts of uncertain authorities, had described two of the auditory ossicles, the hammer and anvil, but Guinterius, a good type of the classical revival or Renascence in medicine, would have none of them; his classic text did not mention them.

"Who praises my work," says Guinterius, "in the opinion that all is Galen's, him I tell it is not Galen's, it is mine own; who despises the work as coming from me, he may know that all belongs to Galen and with me he will also despise Galen." In a later edition of his work, 1539, he acknowledges the assistance of Vesalius.

In 1536, Vesalius, having received his certificate in Paris, returned to Louvain, where he made a public dissection; this was the first which had been made there for eighteen years. This was the time and place of his exploit in robbing the gallows of the body of an executed robber for the purpose of making a skeleton. Here it was also that Vesalius received another lesson which was of use to him afterwards. In a discussion concerning blood-letting he took a modern view, as against ancient traditions upheld by Professor Thriverius. The latter was an old-fashioned Arabian in doctrine, with a thorough contempt of the new-fangled classic notions of such men as Manardus, Fuchs, Curtius and Brissot. He knew that Guinterius, Vesalius's old teacher in Paris, was a Protestant, that some of his friends, Rescius, the printer, and Sturm, were also of the despised sect. Inflamed by this knowledge, and by the opposition, he launched at Vesalius and his friend the dreaded name of medical "Lutherans." It was dangerous business at Louvain and Vesalius courted no more such dangers; he always played fair to the church. At Louvain he edited the ninth book of Almansor of Rhazes, and in this same year, 1537, he went to Venice. Here at the head of one of the church orders was John Peter Caraffa, later Pope Paul IV, and with him was Ignatius Loyola. Later, in 1543, the year of the publication of Vesalius's great work, the Jesuits were fully recognized by the Pope. When Vesalius met these future powers at Venice, their zeal was being expended in the care of the lepros. The spirit which the Council of Trent was destined to turn to other ends was the same as that exhibited in the works of charity. At Venice it was steam in the tea-kettle; the engines devised later to harness and direct the power were the causes of most of the struggles which resulted. Here also Vesalius met Johan Stephan, of Calcar, with whose aid in a few months he published his first anatomical plate. Soon Vesalius proceeded to Padua where, on the 6th of December, 1537, he began life as professor of anatomy in his twenty-third year. For the first time in the history of medicine a real professorship of anatomy was established. There were no barbers employed under the direction of a learned pedant, to endeavor under his lead to show what Galen or some other master had said should be seen, but an earnest, honest, capable man, fired by the conjoined elements of intellect and feeling, bursting all the shackles of formalism for a grand struggle with Nature herself, for the sake of humanity. Vesalius dissected and demonstrated himself. In 1538 came the first fruit, his anatomical plates drawn by Calcar and by himself, and in the same year he published his edition of Guinterius's "Institute," also his own tract on blood-letting, standing for the same ideas which he had upheld in his debate with Professor Thriverius. It is a subject of considerable medico-historical interest but it need not detain us now.

In his work at Padua Vesalius in a multitude of ways shows that he was an active, broad observer and thinker. His similes and illustrations are drawn from every department of human activity; the carpenter, the mason, the iron-worker and the glass-blower all seem to be sympathetically known by him. In his account of the heart he uses the comparison of a bundle of rushes fastened by their lower parts, at equal distances from each other, around a willow ring and gathered above in a knot. A string fastened to this knot and hanging down through the ring below enables him to imitate the action of the muscles of the septum; pull the string and you mimic the dilatation; press the rushes together with your hands in

the middle and you imitate the contraction of the heart.

In 1540, while at work upon the anatomical portion of the great "Junta" edition of the works of Galen (1541), he finally broke altogether with the ancients. He was engaged in setting up two skeletons, one human and one of a monkey, when he found a process of the lumbar vertebræ in the monkey, never seen in man, but described as existing by Galen. In a flash it struck him "Galen had never dissected a man." "I cannot," he says, "wonder enough at my stupidity and trust in Galen which prevented me from seeing this before." He at once began the text of his immortal work. But this, his anatomical lectures, his studies of the text of Galen were not enough; during all these labors we find him studying Hebraic translations of Avicenna, and others, with the aid of a learned Jew, Lazarus de Frigeis. It was at this period that John Caius, the future president of the English College of Physicians and founder of the college bearing his name, lived in the same house with Vesalius. His professional activity as a fighter of irregulars brought down upon him the satire of Shakespeare, who gives his name to the apothecary in the "Merry Wives of Windsor." But no satire of Shakespeare's, even, is as biting as the plain fact that he lived at Padua, in contact with this grand beginning, and went back to England to spend his life in promoting the worship of Galen and the ancients; he lived at Padua in the full light of liberty and truth, he went home a practical Englishman to spend his life in a struggle for "privilege." Vesalius's friends were John Montanus, a really learned linguist, and the best scholar of the time in medical literature, the occupant of the chair of practical medicine at Padua, where he really founded clinical instruction, and Marcus Antonius Genua, the professor of philosophy than whom no more honored professor existed in Italy.

For a time we lose sight of Vesalius to find him again at Basle in the beginning of 1543 attending to the printing of the "Fabrica" and "Epitome." During this period he prepared the famous Basle skeleton. He may have left the city in 1543 for the campaign in Gueldres; we have little but his mention of the campaign to guide us. It is sure that he shortly returned to Italy for his anatomical lectures of the year, but in 1544 he went to Pisa. At this time Cosimo de Medici was attempting to revive the university there and he made a very liberal offer to Vesalius of the professorship of Anatomy, but the call to be physician to the emperor was already accepted. The grand period in his beloved Italy was finished; the peaceful, joyous life of the investigator was to be exchanged for the cares and vexations of Court and practice. Of the next two years there is but little known; he was married in 1544 or 1545; he wrote a practical tract on the China root, and he mentioned Cardanus for the position of physician to the King of Denmark, a place which Cardanus did not accept. Vesalius was at Augsburg with the emperor for a while, as we find from some details of his practice. In October, 1548, he was back again at Brussels; in 1550 again at Augsburg (July 8th), at a meeting of the Reichsrath, in attendance on the emperor. His chief labor at this period was the preparation of the second edition of the "Fabrica," which, dated 1555, was for the greater part published in 1552.

The emperor's plan to become the head of Christendom failed. In 1552 he was obliged to retreat over the Tyrol; the next winter he could not maintain his siege of Metz, and, defeated, he retired to Brussels. We know nothing of Vesalius during the winter of the siege of Metz, 1553, but he was with the emperor at Brussels. In 1555 we have an account of his diagnosing an aneurism of the aorta at Augsburg, but his fate was changed suddenly in 1555 by Charles's abdication of the crown of the Netherlands. The next year he resigned that of Spain and Vesalius was free again (1556). For two years more we have only scanty memoranda of his practice; then in 1559 we hear of him as sent by his new master, Philip II, to Henry II of France on a fruitless effort to save him from a dangerous wound. In 1559 he went to Madrid with Philip's court, taking his wife, who occupied probably some subordinate position in the establishment. Vesalius himself was physician to the embassy of the Netherlands. At the close of 1561 he wrote his review of the "Observations of Fallopius" his last book. The next year (1562) occurred the celebrated case of Don Carlos, the epileptic son of Philip II. The quarrels and traditions connected with this are not important for us and not half as suggestive as his rational treatment of a thoracic fistula in the case of the Duke of Terranovae. A few letters of consultation comprise all that we know until we find him at Venice, in 1564, on his way to Jerusalem; from the time of departure from Venice till his death during the return trip all is conjecture; there are three or four stories of his death, the oldest and probably the most reliable of which is that he died from a catarrhal attack in some city of Greece, and that pilgrims cared for him and brought the news of his death to his widow at Brussels.

The great works of Vesalius were the "De Humani Corporis Fabrica," Basle, 1543, and the "Epitome" of the same date. The first was intended for the scientific, professional student; it contains over seven hundred folio pages, more than three hundred wood engravings, of which about thirty are diagrammatic, the rest carefully drawn from nature; the text describing the human body, the plates, and the instructions in the art of dissection form an organic whole. The "Epitome" is important in connection with the main work. Vesalius in this gave more than he promised, for it is not a compend; in some important particulars it supplements the main work.

Vesalius's first effort, in his great work, was to demonstrate to an unwilling profession that Galen, their idol, in his "De Usu Partium," and in his anatomical observations, had mingled what he read in ancient authors, what he had observed in dissecting monkeys, and what little of human osteology and anatomy he picked up at Alexandria, in an unreliable and unnatural account of the structure of man; further, that he had dodged all difficulties which he found in his way and that, most important of all, he had not gone straightforwardly to nature for answers to direct, plain questions, but sought chiefly, in his observations, support for his preconceived notions. Vesalius merely told his experience; for instance, he followed Galen in illustrating a muscle extending from the neck down on to the breast, but in the text he explains that when the illustration was made he would have sworn that Galen was right, and that this "breast mover" of Galen existed in man as well as in dogs and monkeys, later he saw his error and he cor-

rects it. It was not that he wished to belittle Galen or the ancients; he found mistakes made by Aristotle, but he follows him in deriving the origin of the veins from the heart; he finds Oribasius's compilation a valuable source for correcting some deficiencies in Galen's work; he finds that Avicenna copied from Oribasius, and in general he says the Arabians added something to the ancients. He does not accept Barengar's excuse, common at the time, that man's structure had changed since the ancients wrote their descriptions; he laughs at Dryander, who pictures a saw which could not be used, and, while Guinterius was his old teacher and friend, he could not say otherwise than that he knew little anatomy and was a complete slave to Galen. His other teacher, the great Sylvius, had warned him, having heard something of his doings, and seen his first anatomical plates, to have nothing to do with such plates and by all things not to criticise Galen. He answers by vindicating the use of anatomical illustrations and by publishing his great work; he adds much of physiology in his anatomy; he particularly mentions contractility as an imminent property of muscular tissue; he describes the method of artificial respiration, but he touches lightly upon the functions of the various organs. He mentions the magnifying power of the crystaline lens and is dissatisfied with the prevailing theory of vision; he finds no hole in the heart's septum but he does not totally reject Galen's notions upon this point, though he wonders how the blood can pass from ventricle to ventricle through the septum,— Sprengel follows Haller in mistaking Vesalius's position here. Cheiromancy he ridicules and refers the lines of the hand to the anatomical grouping of the soft parts; whatever may have been the case with Adam he finds that the male skeleton showed no lack of ribs as compared to the female; as he was writing his account of the teeth he had occasion to observe the eruption of one of his own wisdom teeth.

As to the plates, Roth finds that the full-length figures are based upon the average height of man in such proportion that those of the "Fabrica" are one-fifth, those of the "Epitome" one-fourth of the natural size. Vesalius was the first who noticed that the upper border of the symphysis pubis is the middle point of the human body. The wood-cuts were finished in Italy and sent to Basle about the end of August, 1542; the portrait of Vesalius bears the date of 1542, so that the cuts were made between 1538 and the latter date; most of them however during 1539 and the early part of 1540; the work was finished, as to text, August 1, 1542; the illustrations of the "Fabrica" before the rupture with Galen, those of the "Epitome" after that event, as was the text. Stirling-Maxwell says that Dr. Mead left a volume of the original drawings for the work and that they were sold at auction in 1755; where they are, if they exist, is unknown. In opposition to the prevailing opinion Roth thinks that Vesalius made many of the drawings himself although Vasari makes the statement that Calcar furnished eleven of the plates; the initial letters are made up of scenes idealized from the youthful life of Vesalius.

I have made a long list of the anatomical discoveries of Vesalius and of the additions and corrections made by Fallopius, Columbus, Fabricus ab Aquapendente and Casserius, all Paduans; also of the emendations of Varolius and Eustachius at Rome. After having made up the manuscript it seemed to me more in accordance with the purpose of these talks to omit these long details and keep to the idea of throwing out suggestions as to historical relations: the details are accessible to every one, the facts cannot be misinterpreted. Not so with the fame of the man himself; this has suffered and one of the greatest and most useful lessons which our profession can learn to-day is the cause of this injustice to the greatest benefactor of our profession who has ever lived. This statement will, of course, recall the name of Harvey, the immortal discover of the circulation, who himself speaks of the "great Vesalius" in correcting his notions of the movements of the heart; it is not necessary to belittle Harvey; his fame is secure and no greater than it should be; the discovery of the pulmonary circulation by Servetus, of the valves of the veins by Fabricius ab Aquependente, the near approach of Cesalpinus to a full conception of the meaning of the word "circulation" which he uses — all this in no way detracts from the grand merits of Harvey. The careful study by Flourens (1854) of these points have resulted in no suspicion on the part of any one that we of the English race have inflated the reputation which the careful researches and observations of Harvey have merited. They are, however, in every detail, splendid fruits of the tree which Vesalius planted.

In passing, it may be of interest to remark that the names of Vesalius and Servetus were associated in the work of their teacher Guinterius in 1539. The fact that Servetus was a medical man has been generally neglected on account of the title of his work (published 1553) and also perhaps on account of the theological shadow which Calvin's persecution of Servetus has thrown upon the matter. How then has it happened that Harvey having had full justice done him, we have been so tardy in our appreciation of the full merits of Vesalius? There is but one answer, we have left one great subject where the eighteenth century placed it; we have not developed a scientific medical history.

Every tyro in medical history knows the name and the history of most of the great discoverers of single striking facts, Harvey, Asselli, Pequet, and most of the great anatomical discoverers of facts are known either by the striking physiological importance of the new facts in practical medicine or by the association of their names with the parts described in anatomical literature, — but this condition is something like the old relations in history where the names of great dignitaries preserve the fames of wise men and little men indiscriminately, while the really great men and the really great movements are barely mentioned, or at least not displayed in true historical perspective; for instance, Niebuhr found occasion to notice the new conception of history produced by the American Revolution; Lecky to furnish an account of the origin and rise of Methodism; McCarty of English chartism. These and numerous other illustrations, which might include Bancroft and McMasters, are instances of philosophical conceptions of history common to our time, but of which few traces exist in medical history outside of Germany, and there, indeed, not in excess. The words of John Stuart Mill in reviewing Guizot are suggestive in this connection: "History with us (English) has not passed that stage in which its cultivation is an affair of mere literature or of erudition, not of science. It is studied for the facts, not for the explanation of facts. It excites an imaginative, or a

biographical, or an antiquarian, but not a philosophical, interest. Historical facts are hardly yet felt to be, like other natural phenomena, amenable to scientific laws. The characteristic distrust of our countrymen for all ambitious efforts of intellect, of which the success does not admit of being instantly tested by a decisive application to practice, causes all widely extended views on the explanation of history to be looked upon with a suspicion surpassing the bounds of reasonable caution, and of which the natural result is indifference."

When Vesalius left Italy in 1543, Columbus took up his work at Padua; he was energetic and scholarly, and as the beautiful printing and beautiful woodcut frontispiece of his anatomy suggests, a man of elegant taste. His character, however, presents a less pleasing picture; he hated and envied his glorious teacher. Fallopius, greater in every way, patronized the reputation of the man who had broken the way for him and in spite of his other acquirements, was commoh in his lack of appreciation of real greatness. Ingrassius turned against Vesalius. In Germany Casper Bauhin and Felix Plater sought their idol among the ancients, while in France the active hatred of Sylvius and Guinterius came to a head in the younger Riolan, who belittled Vesalius in every way, at the same time attempting to elevate the French teachers of Vesalius and his predecessors in Italy as the real founders of anatomy. The efforts of every individual detractor were aided by the repressive efforts of the Church, and by the forces of Loyola, not that they attacked the man, they simply poisoned the air in which all who would or could have done justice to his merits lived; they did this by indirect encouragement of all the reactionary forces contained in sixteenth and seventeenth century medicine. The effect of all this is indicated in the different fates of Copernicus and Gallileo; the former put forth ideas as revolutionary as the latter; the heliocentric theory of the universe was perhaps more revolutionary than Gallileo's developments of the laws of motion, yet one died in the anti-Jesuit period a peaceful death as a priest, while the latter in the early part of the seventeenth century barely escaped the fate of Bruno. We have seen that Cusa, the Cardinal, published in the fifteenth century the same views, for publishing which Bruno was burned in the beginning of the seventeenth; we have seen that Calvin on his side was as zealous, as honest, and as cruel. All these forces were at their height in Italy and France, and the seventeenth century was quite young when Germany developed a horrible excuse, in the Thirty Years' War, for all literary and philosophical shortcomings.

The world, the flesh and the devil by their servants, the churches, and the churches again by their servants, the philosophers, were busy with other matters than science, truth and progress. In spite of the great anatomical and physiological achievements available, the profession seems to have made no progress for centuries. Fortunately the freedom which the Netherlands had conquered, in 1575, left a home for the student of nature; the University of Leyden was founded and Peter Pauw began the professorship in which after a while he was succeeded by Boerhaave and Albinus, under whose teachings Haller was formed. They were ably seconded by the labors of Morgagni in Padua and Winslow in Paris; with such leaders of medical thought it might seem that the reputation of Vesalius would receive justice; medical bibliography, medical history, in form at least, did revive, Eustachius was resuscitated. At the wish of Boerhaave, Lancisi published the plates of Eustachius; they were republished in a manner that has made it the first old anatomy which rewards the zeal of the embryonic collector; in fact, among the great medical scholars few failed to edit a comment on Eustachius.

Vesalius was also republished but not to such an extent as Eustachius; the artistic merits of the sixteenth-century wood-cuts were not reproduced in the apparently more finished but stiff copperplates of the Leyden edition; so the ragged vitality of Vesalius's genius, reminding one, instinctively, of Michael Angelo, was not appreciated by the formal erudition of the eighteenth-century editors. Our lack of appreciation of Vesalius seems stranger perhaps than it really is. The same phenomenon is not uncommon in general literature and art. The history of Chaucer, Spencer, Shakespeare and of many of our greatest artists, shows the same lack of appreciation of original genius.

Medical learning became as strictly conventional as it was in the sixteenth century; it was multifarious and pedantic; it had many excuses; there was a huge collection of material brought together with infinite labor and pains, but in the mass of details the relations of things were lost sight of or badly stated. Thus Haller, in writing of the irritability of muscular fibre, traces the doctrine back to Fernelius, and even to a certain extent to Galen, but he makes no mention of Vesalius.

Eighteenth-century medical thought in relation to science was very much like eighteenth-century religious thought in England in relation to ethics and to humanity. We all know how the church and the universities in England maintained a stolid conservatism against the efforts of the anti-slavery agitators, and how they left to the Wesleys all care of the religious needs of the masses; it was the same with eighteenth-century medicine until Senac and Bordeu began a movement which Haller's writings, particularly those on irritability, strengthened. A movement which produced in France Desault, Corvisart, and Xavier Bichat. In England the extra academic movement was to a great extent embodied in the work of John Hunter and the anatomists whom he trained. Then came the great historical facts of the American and French revolutions which opened up an entirely new view of history; the discussions which they caused fertilized the thoughts which the philosophers, the archeologists, and the poets, Goethe for example, had originated, — the heart and the brain of mankind were touched; everything promised the realization of the golden dreams of the idealists. The reaction which followed the downfall of the French republic brings us to the beginning of our own era: up to that time Europe lived under the stupid, selfish conservatism whose deeds need only be known to be abhorred. It remains for some American historian of thought and philosophy to show the deleterious effect of the narrow conservatism which ruled European thought, up to our epoch, upon the higher thought and learning in America.

To return to medicine, Portal in his "History of Anatomy" did attempt to do justice to Vesalius; he names him as one of the greatest men who ever lived, and he supports his statement by many strong argu-

ments. Sprengel's great history, really pragmatic in the German sense, made a grand beginning towards a philosophy of medical history; unfortunately for us, the work has been used more as a mine for senseless compilers than as a stepping-stone to a scientific medical history. We in America are in a difficult position as to material, as far as rivalling the Europeans in this line is concerned; but in many ways we are fortunately situated as to the development of the philosophy of medical history; we are free, to a great extent from national prejudices, all our institutions favor liberal, honest, broad thinking; generally speaking, the profession is no where in the world so free from university and academic traditions. All these conditions mean, in spite of some apparent, superficial obstacles, a favorable course for development under the influence of the great laws of evolution.

There are numerous questions in medical history which need to be treated in the spirit of our own times; there is much material rejected or neglected by former historians which needs to be thoroughly worked over. Other reputations than that of Vesalius need vindication and as many need to be relegated to more subordinate positions. These, however, are simply first steps toward a better judgment of great professional movements which, initiated to a great extent during the last four centuries, are now in progress, and one is tempted to say as little understood, at least in England and America, as they were a hundred years ago. We shall be less scandalized by the tyranny of fleeting medical fashions, when we are made conscious, by a study of the evolution of modern medicine, of the origin, the present relations, and the future trend of professional thought and methods.

The fact that medical history is more developed in Germany and France than in England and America is no accident; but scientific medical history, a history that shall consist not merely in the statement of facts but in a study of the causes and relations of the facts, or as Mill has said, a study of these facts as we study other natural phenomena, is yet in its infancy. The increased number of medical histories in the last few years is an expression of the instinctive feeling of the profession; never in the history of our country was the profession as active, as full of the spirit of research, hence never has it so much needed the higher professional culture which shall enable it to deal with the increased production wisely. In the impossibility of mastering all the details which we are so industriously gathering we need a careful culture of that judgment by which we shall select for our needs and by which we shall correlate our selections with the great body of professional thoughts and acquirements. It needs no argument to prove that medical history, in the true sense, is the most promising means of cultivating the faculties needed.

Much of the latent force of the Continental professor lies in his knowledge, if only traditional, of the higher relations of medical thought to the thought of the day, of a better appreciation of the bearing of the results of latest research upon daily practice; this in turn is the best antidote to that medical philistinism which in England and America has been a principal obstacle to the development of sentiments favorable to research. In proportion as this antidote is employed the name and memory of Vesalius will become greater and greater, for he more than any individual was the founder of modern medicine.

Much of all that we have reiterated, perhaps at too great length, as to the importance of culture in medical history was felt by Thomas Jefferson when as rector of the University of Virginia he requested that a lectureship of medical history should be established in that institution. In the light of all that we have claimed for the beneficent effect of a study of the subject it remains to notice the dismal failure of this beginning. The cause is not difficult of discovery, Dunglison killed the thought of the philosopher by eighteenth-century, dry-as-dust methods; with no historical sense, no conception of the general movements of the time, he furnished a lifeless compend from Le Clerc which simply bored without enlightening his hearers. No later edition has mended the matter and our conceptions of medical history, founded upon this and similar compends, have served simply to gratify a mild curiosity as to a few dates and facts.

But a brighter day has dawned. Thanks to Auguste Comte and Herbert Spencer philosophy has become positive and scientific; sociology and biology are making anatomy and physiology philosophical with irresistible force; psychology is being founded more and more upon an anatomical and physiological foundation; the grandest dreams of Vesalius are becoming everyday facts; preventive medicine is engaging the attention of statesmen, — it lies with us by a broader and deeper study of our own history to make ourselves conscious partakers of the new scientific liberalism and progress; to broaden and balance our medical culture that we may be natural partakers with all who make the advance of humanity and sound culture their aim.

In the next talk the subject will be Thomas Sydenham and practical medicine.

Original Articles.

SEPTIC PERITONITIS AND ITS SURGICAL TREATMENT, INCLUDING REPORTS OF THREE SUCCESSFUL AND FOUR FATAL CASES.[1]

BY FARRAR COBB, M.D.,

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In this paper it is my desire to study general peritoneal infection and its surgical treatment, to determine, if possible, in what class of cases intervention is contraindicated, and briefly to report three successful and four fatal cases of my own, operated upon in the last year and a half.

Operation in many cases of general septic peritonitis is far too often regarded as hopeless interference, and there are in this neighborhood and elsewhere varying opinions in regard to the methods of operating and after-treatment. A study of the pathology and bacteriology, including the animal experimentation on the subject, should show plainly that the surgical treatment of septic peritonitis in most cases is *obligatory*, and also that there can be consistently only one method of combating the infection by operation.

Peritonitis is always caused by bacterial invasion. It may be suspected that there are cases of peritonitis the causative organisms of which cannot be isolated

[1] Read at Boston Society for Medical Improvement, April 18, 1898.

by our present culture methods, and there is no question that some peritoneal infections are so virulent that death results so promptly that none of the usual signs of peritonitis are evident post-mortem.

Reichel ascribes many sudden deaths after abdominal operations to such virulent infection. He cites two cases of his in which he made a post-mortem one hour after death, and found no signs of peritonitis, but cultures from the shining peritoneal surfaces gave active bacterial growth.

All the forms of pyogenic cocci have been found in the exudation of general peritonitis. The streptococcus is the organism most to be dreaded, although under certain conditions, the colon bacillus may be possessed of equal primary virulence. The staphylococcus albus is least virulent, and this organism, as also the citreus and the aureus, are often found in association with colon bacilli or streptococci. At times the aureus can cause a very virulent peritonitis.

The colon bacillus and its kindred, the bacillus lactis ærogenes and the bacillus fetidus (for these two are admitted to be practically identical with the colon bacillus) are not as yet entirely beyond dispute as causative agents of peritonitis.

It may be that the colon bacillus is the vigorous, highly resistant organism that overgrows the causative germs, the absorption of which is already causing toxæmia. In general peritonitis from perforation of a typhoid ulcer the typhoid bacillus has never been found, but in most of the cases colon bacilli have predominated and in others pyogenic cocci. Klein found typhoid bacilli in the pus of a localised peritonitis after typhoid. Körte found typhoid bacilli in a case of general peritonitis originating from a suppurating mesenteric gland in the course of typhoid fever, but not from intestinal perforation. This is of certain significance as supporting the theory that in peritonitis from intestinal perforation the causative germs may be overgrown by the other bacteria of the intestinal canal. Recent observers, however, are united in deciding that in many cases the colon bacillus is possessed of great primary virulence.

Elting and Calvert, in a study of perforative peritonitis in dogs, found that the intense hemorrhagic peritonitis present in all cases gave definite bacteriological results in twenty cases out of twenty-two. In eighteen cases members of the colon group were found, four times alone, and fourteen times in association, streptococci once alone, and seven times in association. Staphylococcus albus was found in five cases, but never alone; staphylococcus aureus once alone and three times in combination. In these cases cultures were made in from six to twenty hours after perforation, and the colon bacillus was the predominant organism.

Orlowski, of St. Petersburg, has furnished the most recent work on this bacillus. He isolated eleven varieties, and found the most virulent to be what he calls the "ground type," farthest from the typhoid bacillus in its characteristics. He found a constant relation between the virulence of these varieties, experimentally, and their power of milk coagulation. Injections of the sterilized toxins always caused prostration and diarrhœa — not always death. Injections of living cultures, as well as the sterile toxins, into the peritoneal cavity of dogs or guinea-pigs always caused peritonitis.

The pneumococcus can cause peritonitis. This infection may occur without the association of pneumonia. It is undoubtedly a rare infection but may be extremely virulent.

Morisse collected eight cases in which it was the only organism found. Rosthorn, in 1894, reported three cases. Hartman and Morax report two cases. Reymond, in 1895, collected six cases. Flexner reports two cases, both fatal. Cases have been reported by Barbacci, Frankel, Sevestre, Netter, Gaillard, Wright and Stokes.

The bacillus pyocyaneus is not infrequently found in association with other bacteria. It may increase the virulence of a mixed infection from intestinal perforation.

Gonococci alone are incapable of causing peritonitis. There is now little difference of opinion on this point. However, we meet with the term "gonorrheal peritonitis." McCosh reported a case of so-called gonorrheal peritonitis in the male, in which the cause was the rupture of a peri-prostatic abscess. In this article he collected eight additional cases of gonorrheal peritonitis from literature. In these cases there are no bacteriological examinations reported, and we must infer that the cause of the peritonitis was due to mixed infection with pyogenic organisms. Von Winckel speaks of gonorrheal peritonitis, but does not show any cases of peritoneal infection with gonococci.

The weight of evidence goes to show that gonococci alone are harmless to the peritoneum, and that "gonorrheal peritonitis" is a misleading expression. The bacillus ærogenes capsulatus has been found in a few cases of perforative peritonitis. It is not pyogenic alone, but in the presence of pyogenic organisms may be the main cause of death.

A very rare cause of peritonitis is infection by the bacillus proteus vulgaris. Only one case has been found, that reported by Flexner of Johns Hopkins. This is the putrefactive organism found post-mortem in great numbers, and under normal conditions is not pathogenic to man. This case was most carefully studied by Flexner, and he seems to prove beyond reasonable doubt that the infection was primary and not a post-mortem invasion.

Infection with any of the enumerated organisms will cause peritonitis of varying intensity and character. The anatomico-pathological varieties have been best classified by Pawlowsky:

(1) An extremely toxic variety, the "mycotica," in which death may occur before reactive inflammation takes place on the peritoneal surfaces. In some cases the peritoneum may be covered with a slimy fluid containing a few blood corpuscles, small flakes of fibrin and many bacteria. There is no doubt that cases of such virulent infection occur that death results in a few hours with all the symptoms of shock.

(2) An infection of great virulence is also manifest in the hemorrhagic form, characterized by hemorrhagic extravasations and ecchymoses on the peritoneal surfaces of varying extent — with the intestinal coils markedly injected and distended — by a thin, brownish fluid exudation in which are pus corpuscles and masses of bacteria and fibrin, by fibrin flakes on the peritoneum. This is the common form met with in intestinal perforation.

(3) Fibrino-purulent and sero-purulent peritonitis, characterised by a thin, sero-purulent exudation with flakes of fibrin floating through it, and masses of fibrin on the peritoneal surfaces. This form is the first stage

(according to Pawlowsky) of purulent peritonitis — the sero-purulent fluid is made up chiefly of pus corpuscles and bacteria.

(4) Purulent peritonitis — a form characterized by an abundant purulent exudation of varying consistence.

These forms must run together to a great extent, no sharp division is possible. The kind of peritonitis met with will depend upon the kind of infection, its amount and virulence, and upon the intraperitoneal and systemic conditions in each case.

The less serious forms of peritonitis are the fibrino-purulent and the purulent, the most virulent the hemorrhagic forms. The purulent forms are of longer duration and may be caused by less virulent organisms or by smaller amounts of infection.

Streptococci, colon bacilli and pneumococci are the organisms usually causing the rapidly fatal and hemorrhagic forms, but they may under certain conditions of virulence, amount, or tissue resistance, cause the less fulminating and slower forms. Conversely, while under usual conditions staphylococci may be expected to cause the less fulminating variety, they may, and especially the aureus, under changed conditions cause the rapidly fatal types.

Under abnormal conditions bacteria possessed of little or no pathogenic power may cause a rapidly fatal peritonitis. In any condition where the fluids of the body depart from normal, where the vital resistance of the tissues is lessened and the peritoneum damaged, an infection usually of lesser moment may cause the gravest clinical picture. Such conditions are especially chronic renal or hepatic disease with or without ascites.

Perforation of the intestine is the commonest cause of the rapidly fatal hemorrhagic forms of peritonitis, yet in intestinal perforation any form of peritonitis may be found.

The sero-fibrinous, fibrino-purulent and purulent forms are different stages of a milder infection. In these forms operation is most favorable, for the fatal issue from toxemia is delayed. In some of these cases the fluid exudation will be found sterile at the time of the operation. This does not mean that the process was an aseptic one from the start. The life of bacteria in the fluid exudation is frequently self-limited and active organisms have been found in the fibrin masses on the parietal peritoneum when cultures from the fluid exudation gave no growth. The fact that no culture growth can be obtained is no proof that the individual may not have received previously enough sepsis to cause death. Sterile cultures are favorable prognostically, but they do not alter the fact that bacterial infection existed, neither do they influence methods of operation.

A knowledge of the histology of the normal peritoneum and how fluids and solid particles are taken into the lymph and blood systems is of the utmost importance to the abdominal surgeon, and a clear understanding of the changed conditions in a more or less general peritoneal infection is of the greatest moment in the surgical treatment of peritonitis. The scope of this paper will permit me only to touch upon the most recent investigations.

Muscatello in 1895 reviewed all preceding study of the normal peritoneum and its absorptive channels and his work has been of extreme service to abdominal surgeons, because the practical points were seized upon by Clark of Johns Hopkins. Muscatello's careful experiments can hardly be confuted, although Byron Robinson, of Chicago, in 1897 takes issue with him as to the presence of stomata between the endothelial cells.

There is controversy at present only as to these stomata. All careful investigators are agreed upon the following points which I can only summarise:

(1) The absorption of fluids by the peritoneum is enormous. In an hour it will take up from three to eight per cent. of the body weight, but under the influence of toxic or irritant substances an equal transudation into the peritoneal cavity may take place.

(2) Over the centrum tendinosum of the diaphragm, between the connective-tissue fibres in the diaphragmatic peritoneum, open spaces are situated measuring from four to sixteen millimetres in diameter and grouped in collections of fifty to sixty. These lymph spaces exist nowhere else in the peritoneum and through these the greatest absorption of both fluids and solid particles takes place. Fluids may pass through the endothelium in many places, but the solid particles are absorbed only by these lymph spaces in the diaphragm.

(3) Minute solid particles are carried from the peritoneal cavity through the diaphragm into the mediastinal lymph vessels and glands and thence into the blood circulation by which they are distributed to the abdominal organs to appear later in the collecting lymph glands of these organs. Larger sterile solid bodies are partly absorbed and the remainder encapsulated.

(4) The leucocytes are very largely the bearers of foreign bodies from the peritoneal cavity into the mediastinal lymph glands.

(5) There is normally a force or current in the peritoneal cavity which carries fluids and foreign particles from the pelvis toward the diaphragm, regardless of the posture of the animal (though gravity can favor or retard the current greatly).

Muscatello used carmine granules suspended in solution in his experiments and his work proves that bacteria and all solid particles gain entrance to the system only through the lymph channels of the diaphragm and the mediastinal glands.

This absorption by the normal peritoneum is nature's safeguard against septic peritonitis. Colonies of bacteria are foreign particles that are absorbed by these lymph spaces, just as the carmine particles in Muscatello's experiments, — but the absorption of bacteria has definite limits, as will be seen.

It is well known that certain amounts of bacteria will be taken care of by the peritoneum without peritonitis, if it is normal structurally when the infection is introduced. The ability to remove bacteria and their products depends upon the kind and amount of infection, upon the systemic condition of the individual, upon the integrity of the peritoneum, upon the unobstructed condition of the diaphragmatic openings and upon the presence or absence of culture media in the peritoneal cavity.

The experimental work of Wegner, Grawitz, Pawlowsky and Reichel, of Orth, Waterhouse and of Halstead from 1876 to 1892 is practically harmonious in these conclusions, and is of great interest.

The early experiments deal exclusively with less virulent germs, the staphylococcus group, especially the aureus. In 1895 Cobbett and Melsome did some interesting and valuable intraperitoneal experiments with streptococci.

Washburn in 1895 experimented with the pneumococcus. One of his important points is, that death

may result from toxemia after intra-peritoneal injections and yet but slight signs of peritonitis be present.

Askanazy in 1897 experimented on the introduction of the contents of the intestinal canal, and Orlowski on the injections of colon bacilli, as has been noted.

A study of the work of these men is very interesting, but the conclusions of all can be thus briefly stated:

(1) Normally the peritoneum can dispose of bacteria in varying amounts, depending on the virulence of the organism without producing peritonitis, and the less the absorption from the peritoneal cavity the greater the danger of infection.

(2) Death may result from general septicemia and not peritonitis where large quantities of bacteria or bacteria of special virulence are taken up by the lymph channels.

(3) Irritant material or trauma which destroys or injures the peritoneal surface, even in limited area, prepares a place for lodgment of germs which may be the starting-point of peritonitis.

(4) Stagnation of degenerated fluid in dead spaces favors the growth of organisms, and the presence of infected blood-clots is specially liable to cause a virulent peritonitis.

(5) Injury to the abdominal viscera, as strangulation of an intestine, constriction and ligation of larger areas of tissue in the presence of pyogenic organisms, will almost certainly be followed by peritonitis.

It has therefore been proved beyond question that the normal peritoneum when unhampered by artificial conditions (as blood-clots, irritants and trauma) can safely dispose of certain amounts of pyogenic infection — but in *direct opposition* is the abnormal condition of the peritoneum in general septic peritonitis, or in severe local peritonitis.

In general peritonitis or severe inflammatory conditions of the peritoneum, the lymph channels of the diaphragm are completely choked by masses of bacteria, free, and enclosed in leucocytes; these, by their mechanical obstruction, and also by setting up inflammation in surrounding tissues, thoroughly prevent absorption.

Pawlowsky has showed that this obstructed condition of the lymph channels always occurs, and has illustrated it very beautifully in a series of plates. Just as in Muscatello's experiments the absorbing channels of the peritoneum were filled with carmine granules, so in Pawlowsky's they were choked with bacteria and *débris*.

This obstructed condition of these all-important absorbing channels occurs very early.

Clark, of Johns Hopkins, accepting the facts of absorption and disposal of small amounts of infection by the normal peritoneum, reasoned that slight infection occurring in the course of abdominal operations, such as contamination with pus, or blood, or septic fluids, would be taken care of by the absorptive channels of the peritoneum better than by intra-peritoneal drainage. He maintained that drainage was used far too often, and that the normal peritoneum could take care of moderate contamination, if given favorable conditions, without drainage.

The method advised by him for operations in which there had been septic contamination of a previously normal peritoneum, or where raw and oozing surfaces were to be left, was to wash out the abdominal cavity thoroughly with gallons of hot salt solution, leave in the peritoneal cavity 500 to 1,000 c. c. and close the abdominal wound without drainage, and place the patient for twenty-four hours in a position with the pelvis elevated. By this technique he washed out most of the infection, and by filling the abdomen with salt solution and elevating the foot of the bed, he followed the known facts of Muscatello's experiments, namely, that there are currents in the intra-peritoneal cavity carrying particles to the lymph spaces in the diaphragm, which currents are best favored by gravity. This method Clark called "postural drainage."

This method has been proven valuable, but I am convinced that it is often overdone. Clark's article has been misunderstood by many, and in so far as misunderstood has done great harm. Several men, here and elsewhere, have used his method in extensive local septic conditions and also in general septic peritonitis.

It is distinctly stated by Clark, and also by Finney, that this method must not be used in septic peritonitis, but that in such conditions free drainage is demanded.

I want to emphasize the point that in septic peritonitis there must be drainage. All experimental evidence proves that in a very few hours the absorbing channels of the diaphragm are clogged with *débris* and bacteria, — they have already taken to the glandular system as much infection as the individual can withstand, and their function will be only to slowly add to this by small amounts as the hours go on. They are no longer the open ways through which a small infection can be rushed into the glandular and blood systems and be rendered harmless.

The keynote of the treatment of general septic peritonitis must be the relief of the peritoneum and these obstructed lymph channels, and this can only be done by removal of the septic exudation and subsequent drainage.

And there can be no doubt that in many cases of localized peritonitis the integrity of the peritoneum is so damaged that it would not be safe to abandon drainage. The absorbing channels have become so clogged that any fresh infection during an operation on localized peritonitis could not reasonably be disposed of by them.

A statistical study of the operative treatment of peritonitis is almost worthless, because of the confusion in the reported cases between general and localized peritonitis, because of the lack of evidence in regard to the kind of general peritonitis found, and the absence of bacteriological reports. Early in the present decade some absurd percentages of recovery were published by numerous surgeons. Stuehlen reported seventy-eight cases with fifty recoveries, and surgical literature from 1890 to 1892 abounds in equally glowing statistics. These reports were false in that the operations were mainly done upon localized pus collections in the course of appendicitis. Such percentages of recovery are yet beyond all bounds of possibility.

There are infections so virulent and rapid that the profound toxemia, even at the outset of the disease, must always forbid operative interference.

Acute puerperal sepsis with peritonitis frequently presents a condition where the entire system has received a fatal amount of poison. Operation for the peritonitis will not remove the main source of infection, and the operation which includes removal of the uterus, tubes and ovaries can seldom be wise. There are cases of peritonitis of puerperal origin not so acute which offer favorable chance of recovery by operation. Such cases as von Winckel reports as successful oper-

ations for puerperal peritonitis are chronic cases, operated on weeks after the primary infection.

The treatment by injections of antistreptococcus serum is as yet experimental and inconclusive, Wallick concluded that its use had not modified the mortality.

Peritonitis associated with acute septic inflammation of the gall bladder has been thus far uniformly fatal when operated upon. The infection is usually streptococci or colon bacilli, and is of extreme virulence.

Abbe has suggested that albumin in the urine of peritonitis cases is a contra-indication to operation. There is no way of verifying this statement because of incomplete case reports, but it cannot always hold true, for one of my own successful cases had albumin before operation. The point is worth investigating however.

Cases of peritonitis occurring in the course of advanced renal and hepatic disease, the cases of "terminal peritonitis," cannot be thought operative.

Operations for typhoid perforation and for perforation of gastric or duodenal ulcers may be more accurately studied and the percentages of recovery reasonably estimated.

All the reported cases of operation for typhoid perforation were collected by Finney in 1897 — a total of forty-seven accepted by him. Since then I have found but one published case, that of Panton, which was successful.

The diagnosis of certain of Finney's cases has been called in question, but the series with one added case fairly represents the mortality of operation for this condition, namely, forty-eight cases, fourteen recoveries, a percentage of recovery of 29.2.

In 1895 I collected forty-four reported cases of operation for perforating gastric ulcer; of these ten recovered and thirty-four died. Since then, up to April 1st of this year I have found reports of ninety-eight additional cases with forty-nine recoveries and forty-nine deaths.

A total of one hundred and forty-two operations in which the percentage of recovery is 41.5.[1]

Cases operated on within twelve hours after perforation gave a percentage of recovery of seventy-eight.

It is gratifying to note the decreasing mortality of the operation since 1895.

I have been able to find only thirteen reported cases of operation for perforating duodenal ulcer of which three recovered.

But a statistical study of the vast numbers of operations for general peritonitis from all other causes can give only one or two valuable points.

The factors entering into each case are various and differ with every individual; the virulence of the infection and the resisting powers of the patient cannot be estimated by statistics. In most reports the kind of exudation found and its bacteriological cause is not given. In none is the condition of the kidneys mentioned.

It would be a waste of time to gather together a large mass of cases; even the reports of recent operations are incomplete.

In 1897 Körte reported seventy-one operations done since 1890. This collection of cases excludes chronic cancerous or tuberculous peritonitis, puerperal septicemia and peritonitis from injuries. Of these forty-six died and twenty-five recovered, or 35.2 per cent. In forty-one cases the exudation was ichorous or saniopurulent, of these thirty-one died and only ten recovered.

In twenty-two cases the exudation was sero-purulent, of these twelve died, ten recovered. In five cases it was fibrino-purulent, of which three died and two recovered.

Two cases were mixed forms, both recovered. One case showed fibrin formation and no pus or fluid, this case recovered.

That is to say, of the seventy-one cases the severe hemorrhagic form was found in forty-one, the sero-purulent or mixed and milder forms in thirty and the percentage of recoveries was greater in the milder forms.

Thirty-four cases originated from a perforated appendix — of these thirteen recovered and twenty-one died.

Six cases originated in gastric or duodenal perforation, two recovered and four died.

Six were cases of intestinal perforation from other causes, all died.

Four cases occurred after reduction of herniæ, all recovered.

Fourteen cases originated from the female reproductive organs, of these eleven died and three recovered.

One case was associated with an acute gall bladder, this died.

Six cases were of doubtful origin, two died and four recovered.

Körte's collection is the only recent large one and is the same in its teachings as any that can be made. It is unsatisfactory inasmuch as the only statement as to the bacteriology is that the cultures in most cases showed mixed growths, colon bacilli with pus cocci. It would have been instructive to have known the bacteriology of each case.

Statistical massing of cases can only be corroborative argument for what must be plain from a knowledge of the character of the disease.

The operation is dealing with a septic infection of varying virulence, which will cause death from toxemia, and will be more successful as undertaken early in the infection.

Operative methods must remove as much of the products of infection as possible; this can only be done by washing out and wiping out the peritoneal cavity. The fact that one or two cases have recovered without drainage is no reason for deciding against it.

Within five years opinions as to washing out and drainage have varied, but at the present time there is no uncertainty. Von Winckel, in his recent monograph on peritonitis, shows how those at one time denying the value of irrigation and drainage have been converted.

Finney in 1897 reported five consecutive successful cases, one in the course of a mild typhoid and four caused by perforating appendicitis. Cultures are reported in two cases; in one the infection was colon bacilli and a doubtful coccus, the other was colon bacilli and staphylococci.

McCosh in June, 1897, reported all his cases and with special care eight cases operated on in the year 1896. From 1888 to 1895 he had operated on forty-three cases with thirty-seven deaths, a mortality of eighty-six per cent.

[1] For analysis of gastric and duodenal cases see a paper soon to be published.

Of the eight cases operated on in 1896 all but two seemed in desperate condition, but operation was considered the only possible chance for recovery. Of these eight cases, one died as the immediate result of the operation, one died five weeks later of lung complications and six recovered.

Bacteriological studies were made in four cases, in two streptococci were found, in two colon bacilli. Six cases were caused by gangrenous appendicitis, one by a septic uterus, and one by a perforating gastric ulcer.

The methods of operating adopted by Körte, Finney and McCosh are very little different and illustrate the best technique to be employed. All use very free incision, median or lateral, fully exposing the peritoneal cavity, and in some cases make an additional cut in the right or left flank for further exposure and drainage. All remove the intestines from the abdominal cavity if the patient is not absolutely moribund, keeping them warm with hot towels and hot salt solution irrigation and cleansing them and peritoneal cavity as thoroughly as possible by very free irrigation and by gentle wiping with gauze pads.

Finney pays special attention to wiping off the flakes of fibrin from the intestines and wiping out the abdominal cavity and especially the pelvis. McCosh does this, but lays stress on irrigation.

If the distention of the intestinal coils is too great to permit replacing them in the abdominal cavity, multiple aspiration or incision of them is done with subsequent suture. Salt solution at a temperature of 112° to 114° F. is the irrigating fluid used. All use drainage: Körte, gauze, or rubber tubes and gauze; McCosh, gauze or strips of silk; Finney, gauze; McCosh injects an ounce of Epsom salts into the ileum with a large aspirating needle, closing the puncture with a Lembert stitch before replacing. It is stated by all that few cases are so desperate as not to permit these extensive procedures and my own experience coincides with this view. These details of operation are proven wise by experiment and investigation.

The fibrin flakes on the peritoneum may contain bacteria. This was demonstrated by Calvert and Elting, and in two of my own cases I found streptococci and colon bacilli enclosed in the masses. Irrigation will not remove these masses, but gauze wiping will. In certain forms of peritonitis this fibrin clings so firmly to the bowel that considerable force must be used to remove it. These are apt to be fatal cases. Irrigation will carry off much of the exudation. Reichel has shown that the irrigating fluid will not return sterile, but it will return clear. Calvert and Elting's experiments proved that constant irrigation of the intestinal coils with hot salt solution will rapidly reduce congestion and distention.

The use of chemicals, such as peroxide of hydrogen and corrosive sublimate, which is advocated by certain surgeons, is shown plainly to be wrong by Thompson and by Walthard. From their experimental work it is certain that even weak solutions of corrosive can of themselves cause peritonitis, and that sterile water is often irritating, but normal salt solution is not.

During the past eighteen months I have operated on seven cases of general septic peritonitis, four cases died and three recovered. All were well marked cases, and four were in very bad condition when operated upon. I will report them very briefly:

Case I. Male, age twenty-two. Vague history of abdominal trouble for five days; stupid and dull; pulse 90; temperature normal; abdomen moderately distended. Probable diagnosis of general peritonitis with septicemia, origin doubtful, perhaps appendicitis. Long incision in right semilunar line; general purulent peritonitis found — appendix entirely sloughed off; no adhesions. The original incision enlarged up the edge of the liver; long additional incision made in left flank; thorough irrigation with hot salt solution; gauze and tubular drainage. Death on third day after operation; no bacteriological report obtained.

Case II. Male, age fourteen. Had been operated on six months before for appendicitis; appendix not removed. Has had pain and vomiting for three days. Admitted to Carney Hospital with pulse of 140 and temperature 103°; abdomen much distended and tender. Right lateral incision; general peritonitis; gangrenous appendix removed, no adhesions; fluid exudation thin, brown, and of fecal odor; fibrin flakes on intestines. Intestines withdrawn, irrigation and wiping with hot salt solution. Drainage gauze. Recovery.

Infection, colon bacilli and streptococci.

Case III. Female, age twenty-two. Sick for two days with abdominal pain, vomiting and chills; admitted to Carney Hospital in very poor condition; pulse 150; temperature 101°; abdomen distended; albumin in urine; long incision in median line; general peritonitis with much thin yellow fluid with fibrin flakes and with fibrin adherent to intestines. Suppurating mass consisting of right Fallopian tube and ovary with the appendix adherent removed. Intestinal coils not removed; thorough irrigation; gauze and tubular drainage. Death on second day.

Infection, pure streptococcus.

Case IV. Male, age twenty. Three attacks of appendicitis in four years. Had been treated expectantly for fourth attack which was of slight severity. Had apparently gone on well to convalescence, when suddenly was seized with intense pain and collapse; operation six hours after; pulse 140; temperature 104°; trace of albumin in the urine; abdomen moderately distended and tender. Incision in right lateral region; hemorrhagic peritonitis; no adhesions; gangrenous, perforated appendix removed; much thin brown fluid; intestines injected and showing minute ecchymosis and some coils with small fibrin flakes adherent. Intestines removed and cleaned; thorough irrigation. Gauze drainage. Recovery.

Infection, colon bacilli.

Case V. Male, age eleven. Very poor condition; greatly distended abdomen; mildly delirious; pulse 130; temperature 100°. Long right lateral incision; general sero-purulent peritonitis; gangrenous appendix removed. Intestinal coils removed and cleaned. Irrigation. Gauze and tube drainage. Death on third day.

Infection, colon bacilli and streptococci.

Case VI. Female, aged thirty-one. Had been waiting in one of the wards of St. Elizabeth's Hospital for an operation for a moderate sized pyosalpinx, which had caused no acute symptoms. Sudden pain, vomiting and shock coming on in the middle of night. At time of operation six hours later: pulse 140; temperature 104°; abdomen distended and tender. Long median incision; general hemorrhagic peritonitis; ruptured pyosalpinx removed; intestines not removed; prolonged irrigation. Gauze drainage. Death in thirty hours.

Infection, not determined.

Case VII. Male, age fifteen. Two attacks of appendicitis, last one six weeks previous; taken with pain, vomiting and collapse in middle of night; operation twelve hours after. Condition poor; pulse 140; temperature 103°. Long right lateral incision; appendix gangrenous, removed; general sero-purulent peritonitis; no adhesions. Intestines removed; free irrigation. Gauze drainage.

Recovery. Infection, not determined.

In nearly all of my cases I adopted the complete operation of McCosh. The chief points are adequate

incisions, removal of the cause, withdrawal of the intestinal coils, constant irrigation, drainage free with gauze or rubber tubes and gauze. The regions of the pelvis, liver and spleen need special attention. This complete operation demands plenty of assistance and much care in preliminaries. Many operations for septic peritonitis are of little use; there is far too often haste in preparation and small thought for the essentials. Unless all the careful detail can be attended to by complete equipment and trained assistants the operation may do more harm than good.

In my experience this radical and thorough attempt at removal of the infection will be borne astonishingly well by the patient, provided the intestinal coils are kept warm and handled carefully and if every detail of operation and stimulation is provided. The use of subcutaneous salt solution during and after the operation, I have found of great value.

It will be impossible to state positively which cases will recover and which will die, as it is impossible to say what cases are positively beyond relief. There are limits of toxemia beyond which the surgeon cannot go. What those limits are, further collective experience must decide.

Surely more cases of general peritonitis are left to die unoperated upon, than there are cases operated upon whose chances of life are destroyed by the operation. I do not claim that operation in septic peritonitis is ever more than a forlorn hope, but I do maintain that the operative treatment of this distressing condition is not undertaken as often as it should be, and when undertaken is often done in a half-hearted, incomplete manner.

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Clinical Department.

A CASE OF ACUTE GENERAL STREPTOCOCCUS INFECTION OF THE PERITONEUM FOLLOWING A FACIAL ERYSIPELAS; LAPAROTOMY AND EXTENSIVE WASHING OF THE ABDOMINAL CAVITY; RECOVERY.

BY MAURICE H. RICHARDSON, M.D.,
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THE time seems to have come when peritonitis must be classified and treated in accordance with the increased knowledge of this formidable affection which bacteriology has given us. Not that a recognition of the exact nature of the bacterial growth has as yet enabled us, even by operating promptly, to treat with a much diminished mortality general peritoneal infections — though we cannot but hope for greater success than we have thus far had — but it does enable us, at least, to foresee the probable severity of a given case, the rapidity of its course, the chances of its favorable termination.

That a bacteriological classification, based upon clinical evidence, will be possible sooner or later, seems probable. It seems well established, for example, that of the general peritoneal infections dependent upon appendicitis, those in which the colon bacillus predominates are attended by a comparatively low temperature; those caused by the streptococcus pyogenes by a high one; that a mixed infection may show a high or a low temperature, according to the predominance of one or the other of these germs; that the progress of a streptococcus infection is rapidly fatal, of a staphylococcus comparatively slow, of a colon bacillus sometimes rapid and fatal and sometimes mild and favorable. Moreover, the virulence of the controlling germ varies in different cases between wide limits of activity and of potency.

Certain rare cases of general peritoneal infection undoubtedly recover under medical treatment; but in such recoveries the impossibility of absolute demonstration always renders the existence of a true germ infection doubtful. Such an infection taken for granted, it seems likely that, in cases in which medical treatment is successful, the infection is mild and of slow development, though — as is shown by extensive adhesions between contiguous surfaces, demonstrated at subsequent operations or at autopsies — it is often widespread. In successful surgical cases, it can occasionally be proved that the infection is caused by the most prolific and baneful germs. As a rule, however, the milder the germ, the milder and more favorable the case.

Recovery under any method of treatment is rather a matter of hope than of expectation; for, with all the advance that has been made in the bacteriology of acute general peritonitis, a delay of a few hours after such an accident as perforation of the veriform appendix, places the patient beyond a reasonable hope of relief. It seems therefore reasonable to assert that any delay in applying surgical treatment to general peritoneal infections, whether for the purpose of giving opium to quiet peristalsis, or of giving salines to increase it, is unjustifiable; for when constitutional and abdominal signs point to a general and profound toxemia, the time for successful interference has passed. It is in the realization of the importance of time, indeed, that the chief progress in the treatment of acute general peritonitis has been made.

The general peritonitis of appendicitis is probably a

mixed infection in which the streptococcus pyogenes plays the most actively fatal part. The colon bacillus, because of its great reproductive activity, may often be obtained in pure cultures, and for this reason its influence is probably overrated. The fact that in colon bacillus infections there have been a certain number of recoveries — a small number, to be sure — after drainage and irrigation, has always encouraged me to operate, even in cases of advanced general sepsis. Streptococcus infections, on the other hand, I had been led to regard as always fatal. The following case seems therefore worthy of being recorded. Not that all cases of general infection should not be published, for it is of the greatest importance that every accurate observation in general peritonitis should be made known; but a general infection in which the abdominal cavity was invaded to remote corners, and in which a prompt interference was made, is especially encouraging.

On October 22, 1896, I saw Miss E. J. A., age forty-two, a patient of Dr. Cook, of Natick. She had always been well, though she had had for some years a small uterine fibroid. During the past year she had been flowing a good deal. She had had some trouble with the left ear, following an attack of the mumps in the spring. On Friday, October 16th, about a week before I examined her, she was seen by Dr. Crockett, who sent her home because of an erysipelas involving the left ear. At this time the temperature was 100°. She began to menstruate soon after this. Dr. Cook saw her on Saturday, Sunday and Monday. There was no fever. By Monday the redness and swelling had practically disappeared. On Wednesday, the 21st, Dr. Cook was summoned because of severe abdominal pain. The temperature was 103.4°; the pulse 100. There was marked tenderness over the lower portion of the abdomen. There were nausea and vomiting. Morphine was given hypodermically. On Thursday, the 22d, the morning temperature was 102.8°, pulse 94; noon temperature 104.8°, pulse 105; evening temperature 104.8°, pulse 115. There was occasional vomiting. The menstrual flow still continued.

Physical examination showed the face to be flushed, the pulse 115, the temperature 104.8°. The general condition was good. The abdomen was distended and rigid; there was no dulness or tumor. Vaginal examination was negative, the fibroid being masked by the distention.

The diagnosis made was that of an acute general infection from the streptococcus of erysipelas. Immediate laparotomy was advised as affording the best chance for life, small though that seemed to be.

A median incision below the umbilicus exposed distended intestines floating in cloudy serum. The peritoneum was brightly injected. Here and there flakes of fibrin were visible between adherent coils. The uterus contained several small fibroids. The Fallopian tubes were normal, though the peritoneum of the uterus and broad ligament shared in the general redness. The appendix was normal.

Immediately on opening the peritoneal cavity a culture was made from the escaping serum. A second culture was made from the surface of the presenting intestine. Through the median cut, which was about five inches in length, the abdominal cavity was washed in all directions for about fifteen minutes with a warm saline solution. A gauze drain was left at the lower angle of the wound, from which it led into the depths of the pelvis.

The operation was performed at 6 P. M. At 12 P. M. the temperature was 102.8°, the pulse 101. On Friday, October 23d, the temperature at 6 A. M. was 102°, pulse 104; at 12, temperature 104°, pulse 104; at 6 P. M., temperature 103°, pulse 104. There was no vomiting. The patient was very restless, and was still flowing. On Saturday, October 24th, the temperature at 6 A. M. was 102.4°; at 11, 102.2°; at 5 P. M., 103°, pulse 96–100. From this time the patient was steadily convalescent. On November 2d, 10th, and 16th the temperature suddenly rose to 105°, and was thought by Dr. Cook to be malarial.

The source of the infection in this case was with little doubt the erysipelas; and though the germ may have been introduced into the abdominal cavity through the blood, the channel was in all probability the menstrual flow and the Fallopian tube.

Peritoneal infections without a cause apparent either at operation or at autopsy are extremely rare. I can recall but one or two in which no channel of infection was found. One case in particular was pronounced rheumatic by the pathologist, who failed to find any source of infection. That general infections do take place without the possibility of demonstrating the channel of invasion I have no doubt. The presence in the case described of a local inflammation about the ear, just before the peritoneal infection, must, however, be regarded as something more than a coincidence, especially in view of its erysipelatous (streptococcus) nature. Moreover, it is not surprising that there should be a germ invasion of the peritoneum through the Fallopian tube; indeed, it is surprising that infections should be so rare through an open channel connecting the uterine and the abdominal cavity, particularly when we consider the well-known septic character of the uterine and vaginal canal. The Fallopian tube, to be sure, is abundantly provided with ciliated epithelium which sweeps back the invading bacteria; but so are the bronchi, which at times have little efficacy in warding off pneumococcus and other infections.

Be the source, channel, and nature of the infection what they may, the importance of early recognition of its presence must be emphasized, until every case is brought to operation at the earliest possible moment. A few cases like that here recorded will do much to remove the feelings of profound discouragement with which most surgeons have undertaken the surgical treatment of general peritoneal infection. If it shall appear that an early exploration with prolonged and thorough irrigation of the whole abdominal cavity removes enough of the micro-organisms and their products to enable nature to take care of the rest, we shall then be justified in exposing the peritoneal cavity at the first suspicion of the infection, at the very onset of pain and tenderness.

The recoveries upon which are based the demand and the justification for early and radical measures must be after true infections, as shown by competent bacteriological examination. Turbidity of serum means nothing; for such a serum is quite as likely to be sterile as not. A number of acute abdominal cases have been successfully operated upon at the Massachusetts General Hospital as cases of acute general peritonitis; and although the gross appearances at the time of operation apparently confirmed the diagnosis, yet cultures taken from the turbid fluid proved to be sterile — a fact which immediately robbed the cases of

their supposed importance. It is to be hoped, therefore, that no cases will be accepted as cases of acute general peritonitis without a competent bacteriological examination — not even cases in which the abdominal fluid possesses the usual appearances of pus. As a matter of fact, the only way in which the varying statistics of operations for general peritonitis can be even approximately reconciled is to assume that the majority of successful operations follow infections which are apparent rather than real.

Unfortunately, the evidence obtained from numerous observations made at operations and subsequently at the bedside seems to show that whatever the kind of infection of the peritoneum, however slight or severe its manifestation, and whatever its treatment, the result is still deplorable. Nevertheless, the outlook in view of the increasing number of recoveries in authentic cases after early recognition and operation is distinctly more hopeful.

The report of the pathologist is as follows:

Miss E. J. A.— *Culture from peritoneum.*— Cultures are made on blood serum and in 24° show a pale gray, slightly yellow growth along line of inoculation. Water of condensation slightly turpid, and shows considerable pale yellow deposit. Microscopic growth is found to be a small micrococcus arranged in chains averaging 15 elements in number.

Gelatine stab culture shows at end of 24°, at room temperature, abundant yellowish-gray growth along line of inoculation. Grows as well at bottom as at top of stab. Fine round yellowish colonies on either side of stab. Does not grow as readily on surface of gelatine. Non-liquefying.

Litmus milk shows in 48° considerable change in reaction, but no coagulation.

Potato in 48° in incubator shows no visible growth. In bouillon first culture showed after 48° in incubator a marked sediment with clear supernatent fluid. Sediment is in form of flocculi of considerable size. Later bouillon cultures, however, fail to give this flocculent appearance, but sediment is finely granular.

Agar plates show surface colonies to be pale gray with darker centres and irregular leaf-like contour.

On November 1st a suspension of the organism in bouillon was injected to the amount of 1½ c. c., into a guinea-pig. At end of two weeks animal apparently as healthy as ever. On sixteenth day, however, the pig was found dead in his cage. Autopsy showed microscopically nothing abnormal. Cultures made from spleen and heart's blood. In 48° culture from blood showed one pale lemon-yellow colony which, however, proved on investigation to be not a streptococcus, but the staphylococcus pyogenes citreus. This latter organism was undoubtedly a contamination. The pathogenesis of the organism, therefore, as far as guinea-pigs are concerned, is probably *nil.*

In conclusion: — We have to do here with a streptococcus differing from the ordinary variety in its character as a color producer. Similar organisms have been seen and described, but the exact status of the bacterium is yet to be made out— "*Streptococcus aureus.*"

A PUBLIC DINNER FOR PROFESSOR VIRCHOW. — It is proposed, the *Lancet* states, to entertain Professor Virchow on the occasion of his forthcoming visit to England at a public dinner. Lord Lister, we understand, will take the chair and may count upon the support of the leaders of the profession.

A REPORT OF TEN OPERATIONS FOR GENERAL PERITONITIS WITH TWO RECOVERIES.[1]

BY F. B. LUND, M.D.,
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IN dealing with general peritonitis except in the very early stages the surgeon has to do with patients whose general vitality has been lowered by the absorption of toxins from a serous surface of immense extent and complication and enormous absorbing power. This serous cavity abounds in folds and pockets which increase its absorbing surface, and its inflammation is attended by the paralysis of the musculature of the intestinal canal, by stagnation and putrefaction of its contents, generation of gas, distention, fecal vomiting. The patient's vitality is so quickly reduced by so active and virulent a process in such close relation with the great splanchnic nerve centres, and the attendant paralysis of the digestive and absorbent centres, that whatever measures are taken must be so thorough and effective as to change, and that at once, the condition of the peritoneal cavity from that of an absorbent of toxins to drainer of poison from the system. Operative interference must be thorough enough to accomplish its object at one session, for repeated operation, or continuous meddlesome interference, will prove a fatal tax on the strength of the patient. For this reason a thorough cleansing and disinfection followed by provision for drainage adequate to start a current out of the peritoneum and its lymphatics, instead of into them, must be accomplished at one operation and if possible immediate action of the bowels must be induced to prevent if possible intestinal paralysis, and enable nutriment to be administered to the exhausted system.

If the peritoneum can be disinfected and all its pockets successfully and thoroughly drained, within a very few hours adhesions are found around the drainage tubes or wicks, and prevent further infection of the peritoneal pockets. The patient's condition in cases where this is successfully accomplished changes from one of septic intoxication to one of comparative comfort, and the exhausted system has opportunity to recover.

These facts, the necessity for procuring a condition of rest for the patient, and the securing of adhesions preventing reinfection of peritoneal pockets, seem to me to militate against the exhausting procedures involved in the plans of continuous or repeated irrigation of the peritoneal cavity which have been proposed and tried.

During the past ten months I have been called to operate upon ten cases of acute general septic peritonitis at the Boston City Hospital. Eight of the cases resulted from perforating appendicitis, and two were of tubal origin. These occurred in the services of Dr. W. P. Bolles and Dr. George H. Monks, by whose courtesy I report them. All were operated upon as soon as seen, and in all the condition when first seen was extremely grave. Only one case, not included in the cases reported, was seen which was not operated upon owing to the moribund condition of the patient. This patient died six hours after he was admitted.

In the presence of fatal prognosis without operation it has seemed imperative to disinfect and drain

[1] Read before the Boston Society for Medical Improvement, April 18, 1898. The paper as read was a report of seven cases with two recoveries, but the writer has added three cases operated upon since the date of the writing, two of which recovered.

the peritoneum, wherever there was the slightest hope of the patient's withstanding the shock of the operation.

CASE I was operated upon November 13, 1897; a boy of seven years, whose first symptoms had begun about sixty hours before with pain, continual vomiting, and prostration. On entrance there was general abdominal tenderness without marked distention. No tumor in region of appendix. Short incision over appendix, which was found perforated. No adhesions whatever about appendix. Pus free among intestines and in pelvis, a few delicate flakes of lymph on lower portion of ileum. Redness and loss of lustre of entire small intestine. The incision was extended to five inches. The lower half of ileum was removed from the abdomen, and washed and sponged free of lymph, the abdomen washed out with several quarts of hot salt solution, and wiped dry. The pelvis was drained by a glass tube and the subhepatic space and left lumbar region by gauze wicks. Time of operation thirty minutes. No vomiting followed the operation, the tube was removed the second day, on which day calomel in one-tenth-of-a-grain doses followed by a high enema produced free movement of bowels. No vomiting after operation. Discharged well on December 15th. Cultures from peritoneal cavity showed free growth of bacillus coli communis.

CASE II. M. M., a girl of twelve years, operated upon January 27, 1898. Pain for three days before entrance and vomiting for two days. Diarrhœa since a cathartic was given at onset of trouble. For past twelve hours delirium. Has vomited but once. On entrance mental dulness and delirium. Abdomen generally tender and rigid, but especially in epigastric and right iliac region. No tumor felt anywhere. Pulse 140, fairly good strength, eyes bright and glassy, abdominal pains marked.

Incision over appendix showed general peritonitis with pus throughout abdomen and flakes of fibrin, covering the entire small and large intestine. The incision was extended in the semilunar line to six inches. Evisceration, removal of fibrin, which was only lightly adherent, by sponging and washing, irrigation of entire cavity with salt solution. Pelvis drained by glass tube and gauze, but abdomen left full of salt solution. Suture of upper part of wound. But slight shock from operation, which lasted thirty-five minutes.

The following day marked improvement ensued, the patient was conscious, and her general appearance was much better, pulse 100 and of good strength. No vomiting. Efforts to move the bowels by Epsom salts by mouth and high enemata were unsuccessful during this day and the following, and the patient steadily grew worse and died the morning of the fourth day after operation.

CASE III. J. J. McQ., a boy of twelve years, operated on March 2, 1898. Had had pain in right iliac fossa and constipation for four days, but bowels had moved after an enema twenty-four hours before. Vomiting more or less continuous for four days. On entrance, pulse 104, abdominal facies. Abdomen generally tender but especially so in right iliac fossa, where a tumor is to be felt. Universal rigidity of abdominal muscles, slight distention. Incision five inches long in right semilunar line; immediate escape of thick pus from abdominal cavity, perforated appendix removed.

The ileum, which was covered with fibrin flakes, was removed from the abdomen, and the flakes as far as possible sponged off. The upper part of the small intestine appeared healthy, the abdominal cavity was thoroughly irrigated with salt solution, a considerable amount of pus was washed out of the subhepatic space and the pelvis. One ounce of a saturated solution of Epsom salts was injected through a hollow needle into the ileum, and the puncture closed by a fine silk suture. The pelvis was drained by a glass tube and gauze in the lower angle of the incision, the subhepatic space by a rubber tube and gauze, and the left lumbar region by a gauze wick. The abdomen was left full of salt solution. Time of operation, thirty-five minutes, no vomiting followed the operation, and on the following morning there was a free movement of the bowels followed during the day by several other movements and the passage of much gas. The patient's condition from the day of operation was extremely comfortable, his convalescence being only interrupted by an accumulation of pus in the pelvis, which resulted perhaps from a too early removal of the drainage. This was evacuated by dilating the lower end of the wound by the finger; convalescence has since been uneventful, the boy is well and fat, and left the hospital early in April.

CASE IV. On March 2d, the same day as the previous case, laparotomy was performed upon W. H. G., a boy of twelve who had had general abdominal pain for four days, and vomiting for three, together with absolute constipation. On admission he was found to have general abdominal tenderness, distention and tympany, pulse 140 and weak, temperature 102°. Abdominal pains, immediate operation by median incision below umbilicus, which was extended upward a distance of six inches. Escape of large amounts of very offensive pus from abdominal cavity, which was converted into a series of pus pockets separated by adhesions. Entire small and large intestine covered with very adherent flakes of fibrin. Numerous ecchymotic spots along free border of small intestine. Appendix gangrenous, and sloughed off, feces escaping from stump into abdomen. It was ligatured and removed. Evisceration was performed, but efforts to remove fibrin by sponging were only partially successful, owing to adhesion. Thorough irrigation of abdomen with salt solution. Operation, which lasted forty minutes, owing perhaps to too vigorous and prolonged efforts to remove adherent fibrin, was attended by marked shock, and the final steps had to be taken very hurriedly. An ounce of saturated solution of Epsom salts was injected into the bowel, the pelvis drained by a glass tube and gauze, and the subhepatic space by rubber tubes and gauze. Salt solution left in abdominal cavity, free stimulation with brandy, strychnia and digitalis and the subcutaneous injection of salt solution, one and one-half pints, seemed to strengthen the pulse somewhat, but the improvement was not maintained, and the patient died of shock five hours after the operation.

CASE V. March 13, 1898. E. M. W., a girl of nine years, was operated upon. Four days before she was seized with abdominal pain. Vomiting for three days, with distention of abdomen. Bowels moved on second day of attack by cathartics. On entrance the pulse was 130 and weak. Temperature 99.5°. General abdominal distention, tympanites and tenderness. An incision four inches long in right semilunar

line. Pus escaped from general cavity. No adhesions. Appendix was found perforated, and removed. Intestines covered with fibrin and presented ecchymotic spots. Evisceration, removal of fibrin by sponging. Irrigation of abdominal cavity, which contained numerous pus pockets, with salt solution. Injection of two ounces of saturated solution of Epsom salts into intestine. The cecum which was much distended was incised, and a rubber tube tied in and brought out of upper end of wound. A glass tube drained the pelvis, and gauze wicks the general cavity. The operation was attended with shock, but the patient rallied under free stimulation and rested quietly for six hours. She then woke suddenly, and pulled out the rubber tube before the nurse could restrain her. After that she failed rapidly and died about twenty hours after the operation.

CASE VI. A. W., female, five years old. Operation March 23, 1898. Sudden severe general abdominal pain five days ago. Vomiting for four days. On entrance, general tenderness and rigidity of abdomen. Pulse 150. Temperature 102°. Abdominal pains. Median incision six inches long. Intestines distended and congested, showing ecchymotic spots. Appendix gangrenous, distended to the size of an adult thumb, lying beneath the liver. Large amount of pus beneath liver, in pelvis and general abdominal cavity. Appendix removed. Evisceration, sponging of fibrin from intestine. The intestines had to be punctured in three places to allow escape of gas so that they could be returned to abdomen. Thorough irrigation with salt solution and injection of one ounce saturated solution of Epsom salts into bowel. Drainage of pelvis and subhepatic space with tubes and gauze.

Considerable shock ensued but patient rallied under free stimulation. The following day vomiting began and persisted; pulse grew rapid and weak and death ensued twenty-four hours after operation.

CASE VII. D. H., female, thirty-two years of age. Two days before operation sudden sharp general abdominal pain and distention. On examination, temperature 100°, pulse 101, of fairly good strength. Abdomen tender but not rigid. Tenderness slightly greater on right. During four hours pulse rose to 128 and temperature to 103°. Incision in right semilunar line allowed escape of pus from abdomen. Appendix found congested and adherent to right ovary, which was soft and friable. Right tube congested. Several ounces of pus in pelvis. Small intestine universally congested, and its lower portion covered with flakes of fibrin. Partial removal of small intestine from abdomen, removal of fibrin by sponging, and thorough irrigation of abdomen after excision of right tube and ovary. Drainage of pelvis with tube and gauze.

Operation was fairly well borne, but vomiting began on coming out of ether and continued until death ensued, sixty hours after operation.

CASE VIII. H. G. P., age twenty-two, single, entered the Boston City Hospital on May 18, 1897. Three days ago, during menstruation, was seized with sudden severe abdominal pain. No vomiting. Two days ago distention began to appear. Pain and tenderness not localized.

Examination showed general abdominal tenderness and marked distention. Temperature 101°. Pulse 132 and weak. Abdominal facies. Operation was advised and immediately performed.

A median incision below the pubes allowed escape of a little sero-purulent fluid. The small intestine was generally injected, and the coils in the lower abdomen were covered with delicate flakes of fibrin. Both tubes and ovaries were acutely inflamed and the pelvis contained a moderate ambunt of pus, which was not walled off by adhesions. The pelvis was sponged out with peroxide, and the lower abdomen thoroughly washed out with salt solution, the patient being lowered to the horizontal position.

The pelvis was thoroughly packed with sterile gauze, seven wicks being used, and the lower part of the incision being left wide open, the upper portion was closed with silkworm-gut sutures. Considerable shock followed the operation but the patient rallied. The bowels moved under small doses of calomel on the second day. On the fourth day the wicks were removed under chloroform anesthesia.

Recovery uneventful. Discharged well on June 18th. A culture was taken by a swab from this case, but no growth resulted.

The swab was, however, taken hurriedly, touched merely to the upper surface of the omentum in the upper part of the wound, so that I do not think it is evidence that no organisms were present in the pelvis, which was certainly the seat of an acute inflammation, with pus and fibrin, extending up into the general cavity and not walled off by adhesions.

CASE IX. G. F. R., age thirteen, mulatto, entered May 27, 1898. Sudden severe abdominal pain one week ago, with diarrhea. Some improvement, followed by relapse the day before entrance, attended with abdominal distention and constipation. Rapid prostration.

Examination: Tongue coated. Abdomen generally distended and very tender. Respiration rapid and shallow. Pulse so weak that it cannot be felt at wrist, 180 to 200. Extremities cold, and body covered with perspiration. Although the patient seemed moribund it was thought best not to deprive him of any possible chance which might be held out by draining the abdomen. His condition contraindicating ether, the usual oblique incision three to four inches in length was made in the right inguinal region under cocaine, one-tenth per cent. An enormous quantity of thin purulent fluid escaped, and more was washed out by thorough irrigation with hot salt solution. Glass tubes were inserted into pelvis and subhepatic space. The patient's condition precluded any further measures than washing of the abdomen, and was apparently made no worse by the operation. After it he rallied slightly under active stimulation but soon sank and died about eighteen hours after entrance.

CASE X. N. W., domestic, age twenty-two, single, entered the hospital on August 31, 1898; she had been treated on the medical side at the same institution for pleurisy in October, 1897. She had a slight cough at entrance but otherwise her general health was good. Twenty-four hours before entrance she had been seized with sharp pain in the right iliac fossa, attended by vomiting and prostration. On examination she was seen to be well nourished, fair complexion with clear transparent skin, temperature 104°, pulse 130. Marked tenderness and muscular spasm on pressure in right iliac region. Tenderness over pubis and slight in left iliac region. Lips bluish in color, tongue dry with a thin, white coat.

Immediate operation, by incision in the right iliac

fossa, disclosed pus free in the abdominal cavity. No adhesions. The appendix was found perforated at the base, and was removed. Numerous small, hard tubercles were found on the pelvic walls, broad ligament and mesentery of the small intestine. The whole abdominal cavity was washed out with salt solution, a large amount of pus escaping from the pelvis and from the right hepatic region. Drainage of subhepatic space by gauze strip, and of pelvis by gauze and glass tube.

The pulse and temperature fell rapidly, reaching the normal line on the third day. There was no vomiting after the operation, and the patient is now, one week after the operation, considered out of danger.

The culture of the pus examined by Dr. R. M. Pierce showed numerous micro-organisms, the streptococcus and bacillus coli communis being prominent.

The case is of interest both on account of the virulence of the micro-organisms present, in particular the streptococcus, and on account of the supervention of an acute attack of appendicitis, with general infection of the peritoneal cavity, upon a previous, but not far advanced, tubercular peritonitis.

The operation of evisceration, sponging the bowels free of fibrin, thorough irrigation and sponging when necessary of the abdominal cavity, which must often be supplemented by incision of the intestines in order to allow escape of feces and flatus in order to permit their return, sounds like a formidable one, especially for patients weakened by a general peritonitis. Yet when we are confronted by the fact that without a thorough primary disinfection and drainage we cannot hope for recovery, it seems worth while to perform it even at the risk of shock. With moderate practice, the operation can be done in thirty minutes or a little more. The one step of the operation which is attended with most shock seems to be the attempts to remove adherent fibrin from the bowel. When the fibrin is firmly adherent it seems best, in the light of present experience, not to make too prolonged attempts to remove it. In one of these seven cases that died directly of shock within five hours of the operation the operation was I think unduly prolonged by attempts to sponge fibrin from the bowels. When it is only lightly adherent, it may be easily and quickly removed. Where there is purulent or sero-purulent fluid in the abdominal cavity, but no fibrin adherent to the intestines, it is not necessary to eviscerate.

The other fatal cases lived respectively, twenty, twenty-four and sixty hours, four days and eighteen hours.

In Case II, the girl who died four days after the operation, marked improvement immediately followed the operation. Death ensued upon paralysis of the bowel, and I shall always regret that a saturated solution of Epsom salts was not injected into the intestine.

This procedure, introduced by McCosh, of injection of saturated solution of Epsom salts into the bowel, was tried in four cases, and one recovered. The convalescence of this boy was most excellent, and seemed to me to be favorably influenced by the early movement of the bowels which ensued.

A brief consideration emphasizes the necessity of early recognition of the cases. Case I, which recovered, had general peritonitis for forty-eight hours after the first attack of pain. Three of the four cases which recovered presented in some respects the least advanced picture of the disease, the fourth was certainly an advanced case. Several of the fatal cases showed most severe extensive and intractable processes four and five days after the first attack of pain. The fact that seven out of these ten cases occurred in children is of interest. It is possible that the early diagnosis of general peritonitis is made less often in children than in adults.

In these cases, and other operations for general peritonitis which have come under the writer's observation, those in which ecchymotic spots were noted on the intestine, the hemorrhagic cases, have been uniformly fatal. An occasional success in this otherwise uniformly fatal disease is sufficient indication for operation in all except absolutely moribund cases.

The complication of a fresh acute general peritonitis, in which the streptococcus was found, with an old tubercular peritonitis in Case X is of interest.

A CASE OF GENERAL PERITONITIS; OPERATION, RECOVERY.

BY WILLIAM T. SMITH, M.D., HANOVER, N. H.

CASES of recovery after operation for perforating appendicitis when general peritonitis has already set in are well attested. But they are rare. My own experience with such cases has been so discouraging that when the symptoms of general peritonitis are distinct I have come to expect a fatal result, though I always advise operation to give the patient what chance there may be. I have had recently such a case in a farmhouse in which the patient recovered and I wish to record it.

A farmer, forty-five years of age, in good health and with no history of previous attacks was taken with appendicitis on Wednesday afternoon. After a night of severe pain he sent for the doctor Thursday morning. The usual symptoms existed, pain, at first diffused, later locating itself at McBurney's point; temperature 99° to 100°; pulse 80 to 90 and obstinate constipation. No vomiting. No tympanites on Thursday. Thursday night pain was intense. Friday morning when I was called it had ceased. The belly was tense and tympanitic up to the ensiform cartilage. Temperature 101°. Pulse 134 to 144. Countenance drawn and anxious. I advised immediate operation but gave no encouragement to the friends. On opening the abdomen a sero-purulent fluid oozed out. I found the appendix curled up and adherent at the margin of the pelvis. The adhesions were recent and I separated them freely as there was no indication of any walling in of the locality, and removed a swollen and angry appendix; its lumen obstructed near the base by concretions and an ugly gangrenous perforation beyond. Puncturing the colon in two places to let out the gas, I drew out several feet of small intestine which was inflamed and had many patches of membranous exudate on it. With a one-half of one-per-cent solution of formalin I washed the gut and rubbed off the patches of exudate with a sponge. The gut was then returned, the puncture in the colon being closed by fine silk through the serous coat. Lacking a proper irrigator the blind end of an eight-inch test-tube was broken off and the other end inserted in the abdomen and through this tube irrigation was done with a one-half of one-per-cent solution of formalin. An iodoform gauze wick was carried down to the stump of appendix. A single stitch of silkworm-gut through the whole thickness of

the abdominal wall drew together the upper portion of the three-inch wound.

By the third day after operation the temperature was nearly normal; the pulse 80 to 90; the bowels had moved freely. The patient recovered.

Reports of Societies.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

THE TWENTIETH ANNUAL CONGRESS HELD IN BROOKLYN, N. Y., IN THE HALL OF THE LONG ISLAND HISTORICAL SOCIETY.

FIRST DAY, MAY 16, 1898.

THE President, DR. THOMAS FRENCH, of Brooklyn, made the opening address, welcoming the members in the name of Brooklyn and of the medical profession, and congratulating them on the fact that, with the advance of years, there had been an advance in knowledge. The Association had never been more successful and active than at the present time.

As the result of the work of Pasteur, Lister and Koch a new pathology has been created. The foundation of medical education is, to-day, normal histology and pathology. The search-light of biology and bacteriology is only beginning to reveal the fields for study, which, doubtless, contain many truths which the future will disclose. Our dependence on the microscope in diagnosticating disease is growing with each year, but a proper conservatism in regard to its findings must be observed, for the useless loss of important structures from the not infrequent simulation of elements of inflammation tissue for those of conditions requiring thorough eradication.

As Dr. Delavan has given the history of the Association I will confine myself to specialism and the progress of laryngology and rhinology during the past twenty years.

Three classes of workers are needed in scientific work; the first is the original investigator, who seeks for truth for its own sake; the second the teacher who diffuses the knowledge acquired by the original investigator; the third is he who applies knowledge to its practical uses. Tyndall, in an address delivered in New York twenty-five years ago, said that in no other country would science in its highest forms exert a more benign influence than in ours. At that time those who confined themselves to work in one line were few; now their number is legion and the tendency towards a special field for practice is growing stronger each year. In no department of medicine have the workers increased so rapidly as in ours. Years of practice, together with natural aptitude, are absolutely necessary in order to acquire skill in the surgical treatment of diseases of the larynx, but much less practice is required to permit of intranasal surgical work, and this fact is unquestionably accountable for the large amount of indifferent or mischievous surgery which is yearly growing more noticeable. The advice of Sir Morell Mackenzie that a man should practise medicine and surgery during the first ten years of his career is of greater value to-day than ever before. It is wise to remind a student of the advice given by Dr. William Osler: "As a man values his future life, let him not get early entangled in specialism." To a certain extent it is true that many workers in various departments of medicine are becoming too narrow in their studies, devoting themselves to the acquisition of a limited field at the expense of general medical and surgical information. The charge is also made that specialism is doing great harm because of the charlatans who live and thrive under its influence, yet it is a fact that there are fewer of them to-day than ever before; this condition is due not to specialism, but to the weakness and selfishness of mankind.

Despite the evils that are growing out of specialism the fact that men are centring their thoughts on special lines of work more than ever will result in the largest amount of good to mankind, for we are beginning to realize that concentration is the price we must pay for efficiency. It behooves us to think well on these things and to secure to specialism the minimum of harm and the maximum of good.

Without the discovery of cocaine by Köller the vast strides made in the treatment of diseases of the nasal passages and of the naso-pharynx would not have been possible. Antitoxin, serum-therapy and organo-therapy have played their part in aiding in the advance in this line of work. To a large extent Dr. Dwyer has driven tracheotomy from the field, and to Dr. Hooper must be given the credit of having awakened interest in lymphoid growths of the pharyngeal wall. While the methods of treatment of laryngeal tuberculosis give better results than formerly, we cannot look for signal success in dealing with this disease until the nature of tuberculosis is better understood.

The noteworthy work of our Corresponding Fellow, Sir Felix Semon, and of Prof. B. Frænkel brings encouragement. Dr. Semon in 1894 reported 58 instances of cures of selected cases in private practice after removing diseased parts through an opening made by cutting the thyroid glands.

Our Corresponding Fellow, Dr. John Mackintyre, has succeeded in obtaining, by the use of the x-ray, an image of the septum, the roots of the teeth and other hard structures in the neighborhood. He has also demonstrated the process of ossification in the thyroid cartilage. The shadows of the larynx, however, are not as sharply defined as the photographs of hard bone or foreign bodies. What Lister has done for us by antisepsis, both local and general, has banished the fear of the knife.

As we are ever striving for the truth, and have only one fear — to believe an untruth — free and friendly discussion is invited as the discipline entailed by the practice suspending judgment is one of the means of converting the actual into the ideal. If epitomes of papers to be read could be sent to members of the Association two weeks before the meeting discussion would be of a more fruitful character. The Association wants young, vigorous spirit and particularly men who are interested in and in touch with the advance knowledge of biology, bacteriology and physiology.

At the nineteen meetings of the Association 56 per cent. of the total membership have been present. Since Dr. Elsberg presided, 411 papers have been preserved in the archives of the Association.

DR. J. N. MACKENZIE, of Baltimore, next read a paper on the

LARYNGO-TRACHEAL NEOPLASMS OF TUBERCULOSIS.

Neoplasms of the larynx and trachea may be divided into three groups. The first variety may be termed granular hyperplasia (ordinary granuloma). Anatomically this variety is allied to granulation tissue and may be regarded as a conservative effort to promote cicatrization. A section of the tubercular ulcer shows a more or less clearly defined hyperplastic granulation which is the effort on the part of nature to isolate the tubercular process from the healthy tissue.

The second variety may be termed papillomata; it is more rare than the preceding and may be found in any part of the larynx, but more especially on the posterior wall. Its gross appearance offers nothing by which to differentiate it from simple papillomata, and the microscope reveals nothing of a tuberculous nature. Stürk long ago insisted that these growths are the earliest signs of tuberculosis, and since his time they have often been found to be the precursors of lung trouble. As the essential nature of these growths is as yet undetermined it may not be amiss to relate the case of a man having tuberculosis of the lungs with consolidation at the right apex. The posterior part of the larynx was filled with a mass resembling pieces of coral. There was a growth on the right vocal cord which extended under the cord and on phonation passed beneath the cord on the opposite side. Microscopical examination showed papillomatous nodules cut across and epithelium partly necrotic; also dense round cells with a few giant cells. In the submucous layers the normal tissue was replaced by new tissue. This case fairly represents a type of laryngeal neoplasm found in tuberculosis.

The third variety is the true tubercular tumor which is found in the windpipe. By tubercular tumor is meant an isolated, well-defined growth occurring independently of ulceration or tubercular infiltration and covered by normal mucous membrane, with little or no tendency to ulcerate. These tumors are of great rarity; my experience has yielded but three cases. The first was a tubercular tumor of the trachea, surrounded by apparently normal mucous membrane. Microscopical examination showed the presence of tubercular bacilli. The patient died of cancer of the stomach, and the autopsy revealed tubercular lungs. The second case was one of tubercular growth with vestigium laryngis, such as had never before come under my observation. The nodules in the deeper parts were more advanced in caseation and the lungs contained tubercular cavities. These cases should be clearly differentiated from ordinary infiltration because of their gross appearance and because tubercular tissue is found in the deeper portions of the growths, while in ordinary infiltration the tubercular tissue is found under the epithelium. These growths are probably due to secondary deposits from the lungs or to metastasis. They have little tendency to ulcerate; if ulceration does occur it is usually at a late stage. The microscope alone can give us a correct diagnosis. The color, situation, presence of tuberculosis in the body, etc., are of some value.

In regard to operation in these cases, it is well to bear in mind that it is not advisable to use the knife promiscuously. As the growth usually pursues a slow course, and shows little tendency to ulcerate, it is better to refrain from interference unless serious impairment of function is threatened. In the last stages of tuberculosis it would be worse than useless to operate, as in breaking the continuity of the surface we run the risk of auto-infection. If the growth is a small one it should be taken out through the mouth; if it occupies a large extent of surface, thyrotomy should be performed. In the after treatment, lactic acid and the galvano-cautery are useful. In case the joint is involved and the entire larynx, also, the question of extirpation comes up. It is suggested that this procedure is advisable where the lungs are not much involved.

DR. RICE, of New York, related the history of a case in which the characteristic granulation tissue was found between the arytenoid cartilages. A few weeks ago the growth was slightly broken down and superficial ulceration existed. The growth nearly filled the larynx, touching both vocal cords, and was grayish in color. It was removed by forceps. Iodide of potassium was given, though there was no history of syphilis. In using the galvano-cautery with a slow red heat there had been no inflammatory reaction and the results had been entirely satisfactory.

DR. H. L. SWAIN, of New Haven, cited the case of a woman having a large inter-arytenoid growth. The patient was tubercular. The microscope gave evidences of papillary hypertrophy. The appearance was that of papilloma. After remaining at Saranac for a year she returned home, but later developed tuberculosis of the wrist-joint.

DR. W. F. CHAPPELL, of New York, read a paper entitled

LARYNGEAL TUBERCULOSIS AT THE LOOMIS SANATORIUM.

This sanatorium, situated at Liberty, N. Y., is 23,000 feet above the sea level and the surrounding country is hilly and undulating. The temperature varies from 0° in the winter to from 70° to 80° in the summer. The prevailing winds are northwest and southwest and there is but little humidity in the air. The institution is conducted on the cottage plan.

The local treatment of tubercular laryngitis consists in applications of lactic acid, creosote, ichthyol, nitrate of silver, etc.

Clothing, exercise and food play an important rôle in systemic treatment. Hypodermic injections of horse serum are used and the effect on temperature and cough is far in advance of any other agent yet used. The history of the cases briefly mentioned shows improved command of voice and greater clearness, lessening of pain, better general condition, increase in weight and absence of bacilli.

DR. EMIL MAYER, of New York, thought that patients should be kept in sanatoria and under the care of a physician for a longer time than they usually desired. He strongly advocated the cottage plan.

DR. W. K. SIMPSON demonstrated

THE USE OF THE BERNAY SPONGE IN THE NOSE AND NASOPHARYNX, WITH SPECIAL REFERENCE TO ITS USE AS A HEMOSTATIC.

The Bernay sponge consists of cotton fibre which has been subjected to many hundred pounds' pressure and compressed to a disc of one-sixtieth of an inch in thickness. By the absorption of liquids it will attain fifteen times its size and twelve times its weight. This great absorbing power makes it useful both as a cleans-

ing agent and afterwards to pack the wound. It is more efficient than cotton or gauze for tamponing the anterior and posterior nares as it does not require replacing. The slow absorbing power of cotton or gauze is no guarantee against hemorrhage. In case of epistaxis the sponge should be cut in semicircular shape and introduced into the nostrils with the convexity upwards. This sponge makes an excellent splint in the later stages of an Asch's operation for deflected septum. It is useful in fracture; covered with gutta percha and introduced into the nares it prevents the formation of adhesions after operations. Its power of absorbing discharges makes it a useful intranasal dressing. It is excellent for conveying medicament to different portions of the nasal passages. Like all nasal tampons hemorrhage may be established on its removal, but this accident may be obviated by previously applying some antiseptic ointment to the sponge. The Bernay sponge is prepared by Seabury & Johnson, it is placed in antiseptic boxes and hermetically sealed.

DR. J. W. GLEITSMANN, of New York, exhibited

KIRSTEIN'S AUTOSCOPE.

This instrument is for use where we fail to see the posterior wall of the larynx with laryngeal mirror. It should be used whenever we are sure that the whole larynx cannot be seen without it. It has been observed at the German Dispensary that patients on whom the autoscope had been used did not return. This may have been due to lack of dexterity in using it. In Kirstein's clinic it could not be used satisfactorily without anesthetizing the patient, as it could not be left *in situ* long enough to obtain a good view of the larynx.

DR. WAGNER, of San Francisco, has found the instrument useful in children having papillomata. He had used it in two cases of lupus where he could not see without it. Both in general and in private practice he had observed that patients were not pleased with the instrument.

DR. BEVERLY ROBINSON, of New York, read a paper on the

ENLARGEMENT OF THE LINGUAL TONSIL AS THE CAUSE OF COUGH.

For many years the fact that enlargement of the lingual tonsil may cause cough has been known, but the condition was but poorly understood by the general practitioner. The trouble is liable to occur in persons of a sluggish or lymphatic temperament. The beginning of this condition is insidious, especially in young adults. If the cough lasts but a short time the general practitioner usually ascribes it to the stomach or some reflex cause. Possibly he may think of laryngeal inflammation. The laryngeal mirror may reveal an enlarged tonsil, but the process of examination is sometimes impossible and often difficult. In children of from two to three years of age, a laryngeal cough without reasonable cause is usually due to pressure on an enlarged tonsil. In small children an irritative cough may be only the initial stage of whooping-cough.

The predisposing causes are impaired condition of the general health or the continuance of a catarrhal relaxation. The trouble may also be due to anemia, constipation, and habitually irregular habits as regards food and rest. In small children overfeeding and indulgence in cake may be responsible for congestion of the lingual tonsil. Rheumatic dyscrasiæ in adults is frequently a causative factor.

An irritative cough is often the only symptom of acute congestion of the lingual tonsil; there is little to be found on inspection. At first there is some expectoration, later, muco-pus, and still later, blood, which comes from inflammation of the lingual tonsil. All the symptoms are worse at night. The fossa are sometimes completely filled by the swollen gland, which overlaps the border of the glottis.

Gout, rheumatism and any underlying dyscrasiæ should be treated if present. External medication and cough mixtures afford little relief. The compound tincture of iodine applied every day with an equal amount of glycerine and water may reduce the size of the tonsil. Change of air is an essential element in the treatment. If there is marked renal deficiency spirits of minderiris are useful. If a malarial element is present Warburg's cachets should be administered. In treating hypertrophy of the tonsil use, first, the electro-cautery; second, the snare; third, ablation by means of the tonsilotome.

DR. JAMES E. NEWCOMB recommended the use of boro-glyceride locally and oxalate of cerium internally, the latter drug being administered so that one drachm is given in twenty-four hours.

DR. CLARENCE C. RICE, of New York, does not consider this enlargement so important in children. Physicians often overlook acute attacks of inflammation, putting them down as glossitis. Children do not have localized attacks of inflammation of the lingual tonsil which are not secondary to neighboring inflammations.

DR. H. L. SWAIN, of New Haven, said that at birth there is no adenoid tissue to be observed at the base of the tongue. After zymotic diseases in children there results a congestion and enlargement of the adenoid tissue at the vault of the pharynx and accompanying this there is an enlargement of the lingual tonsil. In cases examined at autopsy there was no such tissue found at the base of the tongue up to the age of puberty.

DR. JOHN O. ROE, of Rochester, stated that the lingual tonsil is composed of the same kind of structure as the faucial and pharyngeal, and when there is enlargement of the one there is usually the same trouble with the other. A tonsilotome which he has constructed on something the same plan as that of Dr. Mackenzie works admirable on adults.

DR. J. W. GLEITSMANN related the case of a woman who had an obstinate cough. Temporary relief followed the removal of her tonsil. Later the cough returned and examination revealed a small hidden growth, the removal of which cured her entirely.

DR. JOHN O. ROE read the

REPORT OF A CASE OF FRACTURE AND DEPRESSION OF THE ANTERIOR WALL OF THE MAXILLARY ANTRUM, WITH RESTORATION OF THE DEPRESSED WALL.

This case, aged thirty-five years, received a blow which broke in the anterior wall of the antrum. The face presented a one-sided appearance on account of the cavity situated in the cheek. In operating the upper lip was raised, the dissection being carried high up; by keeping close to the bone there was but little hemorrhage. A hole was drilled into the antrum

through the canine fossa. The crushed wall of the antrum was raised to its proper position by means of a curved sound. The cavity was cleansed and iodoform gauze introduced. On the sixth day the dressing was removed and the cavity cleansed. The hole in the antrum no longer existed and the contour of the face was entirely normal.

Dr. John O. Roe also read a paper entitled

THE TREATMENT OF FRACTURES OF THE NOSE, WITH DEMONSTRATION OF APPARATUS.

These fractures are usually accompaniments of fracture of the superior maxilla, and are frequently attended with severe hemorrhage. Fractures of the nose are usually bilateral, and may be classified as simple, compound and comminuted. Injury to the lachrymal apparatus affects the resonance of the voice and, therefore, there should be a careful examination of these parts.

As to treatment, replacement of the part should be effected as soon as possible after the receipt of the injury. Swelling may be prevented by the employment of antiseptic measures. In compound fractures, render the parts aseptic and bring the wound together with sutures. The sound and little finger should be used conjointly in replacing the fragments. If the septum is fractured it should be replaced at the same time. The parts should be held in place by splints — an external one of aluminum or copper, large enough to cover the nose and shaped to its normal contour, the edges being fastened by pieces of adhesive plaster while another piece should strap the whole to the side of the face. The internal splint has two arms, one of which lies on the floor of the nose and the other exerts general pressure from the outside. These two arms are regulated by means of a screw, which brings sufficient pressure to bear to keep the parts in their normal position.

Dr. Casselberry, of Chicago, objected to the instrument on the ground that it was not always at hand when wanted and that it was liable to become displaced during sleep. As all surgeons are called upon to treat this condition the dressing should be such as could be easily obtained. He had always found plaster-of-Paris bandages perfectly satisfactory.

Dr. George A. Leland, of Boston, thought that where there was room for replacing the fragment with the finger that this method was preferable to the use of instruments. He emphasized the importance of intra-nasal rather than extra-nasal replacement of the fragments, and also the point that splints should be used in the interior rather than upon the exterior of the nose.

Dr. Roe thought that the simplest method that could be devised was to cut in the proper shape a piece of aluminum or tin, and, after bending it to the natural contour of the nose, to fasten it in position with adhesive plaster. Hamilton used pledgets of cotton with strings attached. Both nostrils should be packed with gauze.

Dr. Henry L. Wagner, of San Francisco, read a paper on

EARLY DIAGNOSIS IN WHOOPING-COUGH.

We can shorten the duration of this disease and prevent its spread by the adoption of proper measures. A diagnosis can be made at once by a bacteriological examination of the secretions. The nose is the primary seat of infection. The secretions from the normal mucous membrane contain but few bacteria, while in this disease a large number of characteristic bacteria are present. This bacterium when full grown is two or three times as long as broad, is rounded and somewhat thickened at the ends, and is divided apparently in the middle. It is surrounded by a capsule not unlike Friedländer's pneumococcus. A one-per-cent acetic acid solution is used in staining, followed by Leffler's solution: Fuchsin, 1; carbolic acid, 5; glycerine, 50; water, 100. In my work I use plain analine dyes. Argonine may be used, which stains the bacteria blue and the cells red.

Dr. Swain inquired if the speaker was successful in finding bacteria in every case of whooping-cough and, also, how long before the patient began to cough.

Dr. Wagner replied that the bacteria are found in every case and are really the primary cause of the disease; they may be found in the pharynx, but the nose is the usual site. They are always found before the cough sets in. The bacteria generally exist in the nose during the early stages of the disease, but later they may be found in the whole upper respiratory tract.

Antiseptics are valuable in treating this disease. Iodoform is not well tolerated by children, but fluid vaseline with eucalyptol or resorcin or other antiseptics in watery solution are beneficial.

Dr. Henry L. Wagner, of San Francisco, reported a case of

LEPROUS ULCER OF THE LIP.

This condition is extremely rare, only one case having been reported. At the International Congress it was stated that the primary seat of this contagious disease was in the mucous membrane of the upper air passages. The case that came to me was that of a middle-aged white man who had lived in China. He had a broken-down ulcer with nodules on the lower lip, that had existed for some months with but little pain. It appeared to be syphilitic, but the nose and throat showed nothing abnormal. A portion of the ulcer submitted to examination showed the presence of lepra bacilli and innumerable suppurative bacilli. The lepra bacilli were lying about among the staphylococcus and streptococcus of suppuration. These bacilli were found partly within and partly without the cells. The patient did not return for further treatment. This case showed the lepra tuberosa form of the disease and also demonstrated a channel by which it could be communicated.

Dr. Emil Mayer, of New York, read a paper on the

USE OF SCHLEICH'S SOLUTION FOR ANESTHESIA IN NOSE AND THROAT OPERATIONS.

Schleich presented the results of his experiments in 1885. The absorption of the anesthetic is dependent upon the surrounding temperature and the boiling point or maximum of evaporation of the anesthetic. Three solutions are employed. No. 1 has a boiling point of 100°; No. 2, of 104°; No. 3, of 107.6°. No. 1 consists of chloroform, 45; petroleum ether, 15; sulphuric ether, 180. No. 2 consists of chloroform, 30; petroleum ether, 15; sulphuric ether, 150. No. 3 consists of chloroform, 30; petroleum ether, 15; sulphuric ether, 80. All these are by volume and not by weight. Mixture number one is the most evanes-

cent in its effect, and therefore, number two and three are preferable in longer operations. It may be said that Schleich's theory of the adaptability of the boiling point of the anesthetic to the temperature of the body has been amply proven. These mixtures are safe for short operations. There is no stage of excitement. The tension of the pulse is increased. The patient becomes rapidly conscious. There is no asphyxia or cyanosis. Neither bronchitis nor broncho-pneumonia are likely to occur. An average of six drachms is used. The youngest patient operated upon was two years. Schleich has used this method in over 1,000 cases without complications.

(To be continued.)

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, April 18, 1898, the President, DR. R. H. FITZ, in the Chair.

DR. FARRAR COBB read a paper on

SEPTIC PERITONITIS AND ITS SURGICAL TREATMENT, INCLUDING REPORTS OF FOUR FATAL AND TWO SUCCESSFUL CASES.[1]

DR. LUND then made

A REPORT OF TEN CASES OF GENERAL PERITONITIS WITH TWO RECOVERIES.[2]

DR. WARREN: I think this is a most important and interesting subject on account of the seriousness of the disease and complications, and interesting because it is now being taken from the domain of incurable cases and there seems to be a glimmer of hope that we may be able to save a certain number of these cases. The one thing that seems to me of great importance for the general reader of current literature is to know exactly what is meant by general peritonitis. Dr. Cobb has given us quite a scientific classification of peritonitis from the bacteriological point of view and also from the clinical point of view, but still we are not able to feel sure, when a writer presents a series of cases with a certain percentage of recoveries, whether all the cases he has reported are those of general peritonitis. I think on this point there is something to be desired in order to enable us to study the matter from a clinical point of view with greater accuracy. If we could have certain tangible points of diagnosis which would enable us to classify the different types of surgical peritonitis so that they were unqualifiedly cases of a certain class, I think we should have a great advantage in studying the treatment of the disease. I have no doubt that in time we shall be able to do that. My experience has been that this disease is of an almost hopeless character. Within the last year I have entered with great enthusiasm into the disinfecting, disembowelling, washing out of the peritoneal cavity. I had my share of these cases in my hospital service this winter, 17 cases of appendicitis occurring in sixteen days in December, several of which were fatal cases with general peritonitis.

I have in mind, not having looked up any statistics, only two cases of what I should call general peritonitis which have been cured. One case occurred several years ago and arose from a strangulated hernia. In that case there were multiple incisions. Pus welled up from the incision in the left groin; thick, creamy pus welled up from the incision on the median line below the umbilicus. Four incisions were made, there was very extensive washing out of the peritoneal cavity, with subsequent opening of bowel to relieve tension and finally complete recovery. There was no bacteriological examination.

One of my cases, operated on this winter by Dr. Scudder, was treated successfully in this way. The usual incision for appendicitis having been made general peritonitis was discovered, a median incision made, the patient disembowelled and washed out according to the method described this evening, and the patient recovered. Bacteriological examination showed it to be a bacillus, I suppose the colon bacillus, although that was not stated in the bacteriological examination. Both of these cases were pretty strong adults.

I opened the peritoneal cavity in the adults and young, disembowelled and injected quarts of salt solution and scraped out, rubbed the intestine and drained in various directions without success and I suppose that it is almost impossible to say of a given case whether it is going to be successful or not. One of the great obstacles to a thorough disinfection of the abdominal cavity is the tendency to shock from the carrying out of the technique of the operation and it has seemed to me that the most marked effect in several of the cases was produced by the disembowelling. The moment the intestines were removed from the abdominal cavity in spite of keeping them warm a marked change in the pulse was noticed in several cases.

Now the question arises, what are some of the improvements in technique that enable us to get better results as I feel sure we shall get as we go along. Dr. Cobb has alluded to one very suggestive point and that is the currents in the peritoneal cavity. How shall we know just what routes pus is selecting for its absorption or for producing its poisonous effects? It seems to me, in that line to a certain extent we are going to gain considerable valuable information. Then in regard to the machinery for the operation, I think that we have got to do it perhaps on a larger scale than we have before. Apparatus is going to be of importance; greater command of large quantities of proper kind of solution, and at proper temperature, pouring enormous quantities at the right temperature into the abdominal wound. Our apparatus now consists chiefly of bottles of salt solution, in rows or in douches, which are perhaps not sufficiently voluminous to enable us to give the amount that is demanded for washing out.

DR. HARRINGTON: This is a very interesting and important subject, and I have been very much pleased to hear what Dr. Cobb has said in regard to the objections to closing up the incision entirely in cases of septic peritonitis. I do not believe that it is a safe or wise procedure. I am perfectly convinced that cases of septic peritonitis may recover without operation. I am sure that I have seen such cases. Operation aids in these cases, because we are often able to remove the cause of the sepsis and most septic material at the time of operation. If the wound is left open and proper drainage is used, we get rid of a considerable amount of septic material which must otherwise be carried off through the lymphatic system, which is already being

[1] See page 234 of the Journal.
[2] See page 242 of the Journal.

worked to its full capacity. Cases of septic peritonitis die from sepsis, and rarely, I believe, from intestinal obstruction, unless that be the primary cause. As Dr. Warren intimated, it is a very difficult thing to draw the line between what is septic peritonitis and what is not. If one opens the abdominal cavity and finds the intestines looking quite normal, and an appendicular abscess, which is shut off from the general cavity, one is inclined to think that septic peritonitis does not exist. But in such cases one will often find a considerable quantity of turbid or purulent serum which has collected in the pelvis. This fluid is probably always septic to a certain extent. It seems to me a great many cases that recover without washing out, and without pelvic drainage, might be classed among cases of septic peritonitis. This we can only prove by examination of the free fluids from all the cases. I am quite convinced that a great many cases of septic peritonitis of the mild sort recover, in which no effort is made to wash out the abdominal cavity, or to remove and wipe the intestines. I do not believe in removing the bowels from the abdominal cavity and wiping them off. In septic peritonitis, when severe and general, I advise washing without the removal of the bowels. In cases of great distention of the bowels it is a wise thing to tap. I have found an ordinary gum elastic catheter very serviceable for this purpose. It can be inserted through a small opening, and may be moved through the intestine beyond kinks, and large quantities of gas and feces can be removed. Before it is withdrawn McCosh's method of introducing sulphate of magnesium can be employed, which I think is another valuable aid.

I believe that the line of the insertion of our drainage is of importance. I think that the closer we can keep to the parietal peritoneum the better. It is a dangerous thing to have the gauze extend in among the coils of intestine. It is usually possible, whether your incision be median or lateral, to follow the parietal peritoneum so that the gauze lies with abdominal wall on one side of it, and the intestine on the other. The advantage is that there is much less danger of intestinal obstruction, which may take place in the weakened condition of the intestines.

Dr. J. C. Munro: I think it significant that Dr. Lund's cases of recovery were almost all in children. In my own experience the only cases that have recovered, three, were in young people, that is, people of resistance. In addition, eleven cases of acute purulent general peritonitis in patients over thirty-five have been fatal, no matter what has been the treatment. All the cases of tubal origin have died; but, of course, they belong to the low class of women as a rule. Two cases of gastric ulcer, perforating, with general peritonitis have died. The patients that recovered were young people, with good staying power. In none of these was any extensive operation done beyond flushing the belly with gallons of salt solution. In every case in which I have tried Finney's method I have been obliged to stop on account of shock, but all the cases were adults and of poor resistance.

Dr. Fitz: It is an occasional experience at post-mortem examinations to find the intestines extensively adherent and united to the abdominal wall by means of fibrous adhesions, appearances to be regarded as positive evidence of recovery from a general peritonitis. In rare instances these appearances are attributable to a fatal peritonitis, more often they are associated with a history of antecedent, severe, peritonitic symptoms. Although Dr. Cobb states that the results of bacteriological examinations are opposed to the view that gonococci are a cause of general peritonitis there can be no doubt that gonorrhea may prove the source of this disease. A number of years ago Dr. M. H. Richardson and I saw such a case in a young man, ending in death. The peritoneal infection proceeded from a subperitoneal bubo secondary to the gonorrheal urethritis. As cultures were not made from the exudation it is quite possible, as asserted by Dr. Cobb, that a mixed infection may have existed. It is obviously of extreme importance to remember that gonorrhea even in the male may cause a fatal peritonitis although the bacteria in the exudation may not prove to be a pure culture of gonococci.

Dr. Cobb: I did not wish to be understood as thinking that no cases of general septic peritonitis recover. I think we know nothing in regard to the infection in those cases that recover without operation. In my paper I considered only those virulent infections which I am sure rarely recover without operation. I do not believe it is at all frequent for infections with pneumococci, streptococci or colon bacilli presenting the severe picture of undoubted septic peritonitis involving the entire peritoneal cavity, the regions of the liver, spleen, small intestine and pelvis, to recover without operation. I am willing to grant that cases of localized peritonitis may simulate general peritonitis clinically, and recover without operation. I did not intend to consider the cases in which there was any question of diagnosis, but only the cases of acute general septic peritonitis with rapidly rising pulse, distended abdomen, tenderness — all the unmistakable signs of peritonitis. If persuaded that general peritonitis exists I do not see how any one can possibly delay operation. The earliest possible operation theoretically and rationally is the one to be successful.

My experience in regard to the shock of disemboweling the patient has been that in the moderately prostrated cases, if done properly, the shock has not been increased appreciably. In fact, all the cases in which I have done it have not been any the worse for it. I have plenty of assistants and keep up constant hot salt-solution irrigation and have one assistant do nothing but take care of the intestinal coils and keep them warm. I think if we are trying to remove as much of the acute bacterial infection as possible and it has been proven that the fibrin flakes contain active organisms we should try to remove them if the condition of the patient admits it. In one or two cases the fibrin would not come off without the use of considerable force and in my experience those are the fatal cases and it is not wise to inflict the necessary trauma on the peritoneum to remove it. In the other cases I think the flakes of fibrin ought to be removed.

Large Families in the Philippines.— It is stated that the Bocals, who are supposed to be the aborigines of the Philippine Archipelago, are, without doubt, the laziest people in the world. As we see, however, in some of the least worthy elements of our own population, they have very large families, often twenty children in a house, and there are numerous cases of parents having fifteen to eighteen children. It is a lamentable fact that the size of the family is apt to stand in inverse ratio to its degree of intelligence.

THE BOSTON

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TREATMENT OF HEMORRHAGE FROM THE BOWELS IN TYPHOID FEVER.

HEMORRHAGE in typhoid fever may occur in the earlier or later stages. Before the latter part of the second week, hemorrhage arises from rupture of engorged vessels in the infiltrated patches; in the third and fourth week and later, it is due to ulceration and sloughing. The practitioner will generally be able to refer hemorrhage in typhoid fever to the one or the other of these causes, and will naturally regard the earlier hemorrhages as of the most favorable prognosis, demanding no special modification of the ordinary treatment; before the hemorrhages of the final stages he will often stand appalled, and every kind of treatment may be ineffectual. These ultimate hemorrhages frequently prove fatal by the abundance of the blood-loss which cannot be arrested by any medical or surgical means at present known; peritonitis by perforation often carries off the patient.

If the hemorrhage of the early stages may be salutary rather than dangerous, relieving the congestion at the primary foci of the disease, hemorrhage from ulceration would seem to demand the most prompt and energetic measures. Unfortunately we are still obliged largely to treat these hemorrhages empirically. The junior practitioner will exercise caution before he sets aside therapeutic methods which are the result of the wide experience of acute and careful clinical observers, for methods which may be the result of theory rather than of exact knowledge.

And here we take exception to an able article in the July number of the *Therapeutic Gazette*, in which the writer condemns the treatment of the hemorrhages occurring in the later stages of typhoid fever by opium and astringents as unscientific and pernicious. The opium treatment of typhoid hemorrhages may be regarded as one of those methods which have been empirically acquired. It has long been taught on the authority of clinical experience, that small doses of opium have a restraining influence on internal hemorrhages; such use of opium was counselled as far back as Sydenham and John Cullen and by earlier authorities in intestinal and other fluxes, and at the present day it would be hard to persuade the practitioner who is called to prescribe for an alarming hemorrhage from the bowels with shock and collapse that opium is wholly contraindicated as being baneful and dangerous. We have said *small* doses rather than *large*, recognizing that there is no indication to paralyze the organic functions, lock up the secretions, or unduly restrain the peristalsis of the intestines. There is a marked difference in the action of opium according to the dose given and the combination, and it is a matter of common experience that this remedy is often of great efficacy in diarrhea and dysentery when combined with laxatives, as rhubarb, which keep up rather than arrest the action of the bowels. We do not profess to know or to explain just how opium acts as an anti-hemorrhagic agent, and do not believe that we are in this respect much farther advanced than the undergraduate of Molière's play who thus explained the hypnotic action of opium: "*quia in eo est virtus dormitiva.*" We do not believe that opium is given in intestinal hemorrhages "to paralyze the vasomotors," as the *Therapeutic Gazette* writer intimates, and believe that its action is too complex to be included in any such formula as that. At least this was the view of Vulpian after careful experimentation with opium and its salts.[1]

Nor do we think that it is the intent of the practitioner who prescribes opium or morphine in intestinal hemorrhages absolutely to arrest peristalsis, as the *Gazette* writer intimates. He would not so much arrest intestinal peristalsis as diminish it. He does find an indication to put the bowel at rest as far as this can safely be done. If the existence of pent-up bacterial products and accumulated blood-clots are a menace to the patient, if meteorism is on the increase, the practitioner will take some safe means of clearing out the bowels, whether by saline laxatives or cold enemata; at the same time he may deem it necessary to continue the opium treatment by mouth or hypodermically. It is a little surprising that the writer in the *Therapeutic Gazette* does not allude to the turpentine treatment of the hemorrhages of typhoid fever, proposed more than fifty years ago by Dr. Copland in the *Lancet*, and highly extolled by many subsequent authorities. Murchison used to prescribe turpentine in 15-minim doses along with 10 minims of laudanum in mucilage every three or four hours, and says that this combination was almost invariably successful in arresting the bleeding. Turpentine has the merit of being antiseptic as well as stimulant and styptic.

With regard to the exhibition of acetate of lead, tannin, perchloride of iron and even ergot in the hemorrhages of typhoid fever, perhaps the experienced practitioner who has seen many cases die in spite of the free exhibition of these astringents and a few recover, may be allowed, with Liebermeister, to indulge

[1] Les vaso-moteurs, tome II, p. 519.

some scepticism with regard to their utility. It is not absolutely proved that these astringents reach the bleeding focus to exercise there any styptic action.

It has been said that authorities are not united as to the treatment of the hemorrhages of enteric fever, some favoring ice-cold compresses over the abdomen and cold lavements, and others condemning these measures as irrational and pernicious. There is, doubtless, more general agreement as to the utility of the opium treatment.

Dr. McCorkle,[2] for instance, affirms that opium has "a marked sustaining action on the heart," and a tonic effect on the nervous system. He thinks it a great cerebral and spinal stimulant, and an "equalizer of the circulation." In the later stages he has often withdrawn the opium and found the ataxic symptoms become more pronounced, the heart's action feebler, with return or increase of delirium, all of which symptoms have abated on resumption of the opium. He regards it as the sheet anchor in hemorrhage, not because it *paralyzes*, but because it *stimulates* the vasomotor system! In looking over our files of medical journals we everywhere find similar testimony, and those who still cling to the opium treatment of intestinal hemorrhages have the support of the very best clinical authorities for that theory and practice.

UNIFORMITY IN THE REGISTRATION OF VITAL STATISTICS.

THE following statement from the last number of the *Monthly Bulletin of Vital Statistics of Michigan*, shows that progress is being made in several States, together with two of the British Provinces and Mexico, in the matter of an improved system of nomenclature and classification of diseases and causes of death. The movement in this direction is chiefly due to the energy and intelligence of the Superintendent of Vital Statistics of Michigan, who has taken a deep interest in the subject of uniform methods in this country.

It is quite significant that Massachusetts, once the foremost in this important branch of public work, should now be lagging so seriously behindhand.

"At the Annual Conference of State and Provincial Boards of Health of North America, Detroit, August 10–11, 1898, the following resolutions were unanimously adopted:

"*Resolved*, That the Conference of State and Provincial Boards of Health of North America recommends the adoption of the Bertillon classification of causes of death as soon as such change can be conveniently made from the systems now in use in registration offices;

"*Resolved*, That the governments of the United States, Mexico and Canada be likewise requested to make this classification the basis of the mortality statistics of the censuses of 1900 and 1901.

"The progress of the movement for a uniform and perfectly comparable classification of causes of death is indeed very gratifying. The following State registration offices now use the Bertillon system, or will put it into use in the near future, all of which, excepting only Quebec and Mexico, have adopted it during the present year — Canada: Province of Ontario, Province of Quebec. United States: State of Connecticut, State of Indiana, State of Maine, State of Maryland, State of Michigan, State of Minnesota, State of Rhode Island, State of Vermont, State of Wisconsin. Mexico: (Superior Board of Health).

"Its acceptance by several other States may be expected in the near future, so that perfect comparability will soon be attained.

"The final action of the American Public Health Association on the adoption of this classification will take place at the meeting to be held at Ottawa on September 27–30, 1898. As most of the members of the Association actively interested in vital statistics belong also to the Conference of Boards of Health, the action of the Association cannot be doubted. There will then remain to be decided the exact time and means of putting the system into effect in the several offices, the establishment of the measures for periodical revision of the classification in order to keep it abreast of scientific progress, and the work of the first regular revision before the registration offices put it into practical effect. This work will be an arduous one, but ought to be thoroughly done, with the co-operation of all the countries using the system, including France and South American countries, in time to be officially promulgated in the year 1900 — perhaps in connection with the session of the International Congress of Hygiene and Demography at Paris in that year. This will enable statisticians all over the world to begin their compilations for the first year of the next century on a uniform system."

MEDICAL NOTES.

CORSETS PROHIBITED. — The Russian Minister of Public Instruction has issued a decree, prohibiting the use of corsets by women.

WOMEN HONORED. — An Italian woman, Signorina Esther Bonomi, has obtained at the University of Genoa the first doctorate in medicine granted to a female student, in modern times at least, in Italy. Another woman, named Dr. Katharina van Tusschenbroek, has been appointed to the professorship of gynecology in the University of Utrecht.

A POSITIVE DANGER. — Professor Vincenzi is said to have been making investigations regarding the purity of certain holy water used in a popular church in his native city. He found that one drop of the water taken on Saturday while people were applying it to lips or brow, when spread on a gelatin sheet, yielded within forty-eight hours about 2,300 colonies of bacteria. On Sunday when the holy water was in more constant use the professor could not estimate the innumerable colonies, but his tests proved that there

[2] North Carolina Medical Journal, June, 1897.

were diphtheria bacilli among them, and cases of diphtheria in Sassari at the time emphasized the revelation.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, September 7, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 18, scarlet fever 13, measles 9, typhoid fever 19.

SAILING OF THE "BAY STATE." — The *Bay State*, thoroughly provisioned, and with the addition of Dr. Richard C. Cabot to her medical staff, sailed yesterday for Porto Rico, with the expectation of being gone about three weeks. She is expected to bring those members of the Sixth Massachusetts Regiment, who are ill, to Boston.

DEATH OF DR. CLEON M. HIBBARD. — We announce with regret the death of Dr. Cleon M. Hibbard, of St. Louis, house-physician at the Planters' Hotel, and formerly Assistant Superintendent of the South Department of the Boston City Hospital. He fell through a passenger elevator-shaft from the seventh floor, August 22d, and was almost instantly killed. Dr. Hibbard had already done considerable scientific work of significance, particularly in connection with diphtheria. His death is a distinct loss to the medical profession.

NEW YORK.

MORTALITY FROM HEAT. — The extreme heat of the last two days of August and first four days of September caused a considerable increase in the mortality of the city. On September 2d, there were 21 deaths from the direct effects of the heat reported, and on September 3d, no less than 64, by far the largest record of any one day during the present season; 45 of the deaths occurred in Manhattan Borough; 17 in Brooklyn and 2 in Queens. On Sunday, the 4th, there were almost as many fatalities, 60, and the death-list would no doubt have been still greater if it had been a working day. One of the victims of sunstroke was a member of the Seventy-first Regiment, New York Volunteers, now on furlough, who had safely passed through the tropical campaign of Santiago. It must be understood that these reports represent only a part of the actual mortality from the heat, as they do not include any cases regularly attended by physicians, but only those coming under the notice of the police, when the patients actually died on the street or shortly after their removal to hospitals.

DISTRIBUTION OF STERILIZED MILK. — In view of the excessive heat and the consequent suffering among the tenement-house population, Mr. Nathan Strauss ordered that all the depots for the distribution of sterilized milk which he has so generously established, some of which are usually open only at certain hours and others entirely closed on that day, should remain open all day Sunday. At most of these infants' food, prepared after the formulæ of Drs. A. Jacobi and R. G. Freeman, can be procured gratis by those too poor to pay the cost price charged to others.

Miscellany.

RAILWAY ACCIDENTS IN 1897.

FROM statistics furnished by the Interstate Commission, we learn that the total number of casualties to persons on account of railway accidents in the United States, for the year ending June 30, 1897, was 43,168. Of these casualties, 6,437 resulted in death, and 36,731 in injuries of varying character. Of railway employees, 1,693 were killed and 27,667 were injured during the year. According to the three general classes these casualties were divided as follows: Trainmen, 976 killed, 13,795 injured; switchmen, flagmen and watchmen, 201 killed, 2,423 injured; other employees, 516 killed, 11,449 injured. The casualties to employees resulting from coupling and uncoupling cars were: killed, 214; injured 6,283. The corresponding figures for the year ending June 30, 1896, were 229 killed and 8,457 injured. The casualties from coupling and uncoupling cars were assigned as follows: Trainmen, killed, 147; injured, 4,698; switchmen, flagmen and watchmen, killed, 58, injured, 1,325; other employees, killed, 9; injured, 260. The casualties resulting from falling from trains and engines were as follows: Trainmen, killed, 325; injured, 2,726; switchmen, flagmen and watchmen, killed, 32; injured, 357; other employees, killed, 51; injured, 544.

The casualties to the three general classes of employees mentioned caused by collisions and derailments were as follows: Trainmen, killed, 250; injured, 1,327; switchmen, flagmen and watchmen killed, 11; injured, 74; other employees, killed, 42; injured, 251. The total number of passengers killed during the year under review was 222, injured, 2,795. Ninety-three passengers were killed and 1,011 injured in consequence of collisions and derailments. Other than employees and passengers the total number of persons killed was 4,522; injured, 6,269. Included in these figures are casualties to persons classed as trespassers, of whom 3,919 were killed and 4,732 were injured. From summaries showing the ratio of casualties, it appears that one out of every 486 employees was killed and one out of every 30 employees was injured during the year. With respect to trainmen, including enginemen, firemen, conductors and other trainmen, it appears that one was killed for every 165 employed, and one injured for every 12 employed. One passenger was killed for every 2,204,708 carried, and one injured for every 175,115 carried. Basing ratios upon the number of miles travelled, it appears that 55,211,440 passenger-miles were accomplished for each passenger killed, and 4,385,309 passenger-miles for each passenger injured.

THERAPEUTIC NOTES.

M. LEFOUR[1] tells of a case of vomiting in a pregnant woman, which became so intractable, that he was called upon to empty the uterus, but instead he did an energetic pulverization over the dorso-cervi-

[1] Journal de Méd. de Bordeaux, February, 1898.

cal portion of the spine with methyl chloride and as a result the vomiting ceased, and has not returned since.[2]

At a meeting of the Académie de Médecine of Paris, held April 12th, Cadet de Gassicourt[3] communicated a case of congenital goitre in an infant, treated successfully by administering to his nurse — his mother — thyroid extract. The three months old infant had a two-lobed goitre, his mother — a woman of twenty-two — had also a goitre, but presented no signs of myxœdema or cretinism. The mother was given daily two tablets of the dry thyroidine during five days, when the treatment was interrupted for four or five days, and then renewed again. Neither the mother nor the infant presented any symptoms of thyroidism. At the end of six weeks a diminution in the size of the mother's goitre was observed, while after four months of treatment the goitre in the infant disappeared entirely, the general condition improving considerably. Although the mother's milk was not analyzed, it is reasonable to assume, that the active agency of the thyroid-gland extract was communicated to the infant by the mother, through her milk.[3]

FOR PRURITUS OF THE SCROTUM:

℞ Hydrarg. corrosivi . . . . . gr. i.
Alcoholis } aa . . . . . 3 v.
Aquæ chamomill }
Chloroform . . . . . gttas. v.
Aquæ lauroceras. . . . . ad. 3 iiss.
M. et Sig. For external use. (Leistikow.)

Sturwitz[4] tells of a case of scarlatinal nephritis in a seven-year-old boy, attended by ascites and edema, which could not in the least be relieved by the ordinary treatment in use. He resorted to the almost entirely forgotten venesection — which he considers as an effective diuretic agency under certain circumstances — and an abstraction of a small cupful of blood brought on rapid diminution of the edema on the very next day.

FOR PEDICULI:

℞ Bals. Peru. . . . . 3 ii.
Spir. Æth. . . . . 3 x.
M. et. Sig. Rub in as directed. (Therap. Monatsch.)

In connection with Dr. Sturwitz's case we find that Professor Larache[5] resorts to blood-letting in cases of uremia. One patient suffered with anuria of pyelonephritic origin for six days. Venesection brought on abundant secretion of urine, which placed the patient at once beyond any danger. The amount of blood extracted in this case amounted to twenty-five ounces, in other cases to half or a little more of that quantity. In another case, that of a woman of twenty-nine, who was brought into the hospital suffering with severe uremic convulsions due to a chronic nephritis, venesection brought on almost at once a cessation of the convulsions, and abundant secretion — about 8 litres in 24 hours — of urine. In the third case, that of a twenty-one-year-old girl suffering with uremic convulsions due to an acute nephritis, the convulsions disappeared a few hours after the venesection, but diuresis was not influenced to any marked extent. Investigation of the blood showed that the number of the red blood corpuscles reached the normal in from two to five weeks. As an indication for blood-letting, Larache considers a favorable general condition, as well as increased blood pressure, as evidenced by the condition of the pulse.

[2] Bulletin Général de Thérapeutique, June 8, 1898.
[3] Russkiy Archiv. Patologii et cet., May 31, 1898.
[4] Therap. Beilage de. Deutsch. med. Woch, June, 1898.
[5] Deutsch. med. Woch., Centralblatt f. d. gesam. Therapie, July, 1898.

METEOROLOGICAL RECORD

For the week ending August 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...21	29.92	72	84	60	76	66	71	W.	W.	12	10	C.	C.	
M..22	29.84	78	88	67	72	73	76	W.	S.W.	11	12	C.	O.	
T...23	29.86	78	88	69	82	86	90	W.	S.	8	14	O.	R.	.36
W..24	29.88	82	94	69	81	86	84	S.W.	N.W.	9	10	C.	R.	.04
T...25	29.74	78	84	71	89	85	82	S.W.	S.W.	12	9	O.	C.	.36
F...26	29.83	72	78	66	64	53	60	W.	W.	15	12	C.	C.	
S...27	30.01	68	74	62	70	47	58	N.W.	N.	10	9	C.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 27, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Whooping-cough.
New York	3,438,899	1402	719	22.56	9.36	15.68	2.46	2.04
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	—	—	—	—	—	—	—
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	189	83	24.38	13.78	21.18	1.59	1.06
Boston	517,732	274	114	21.96	9.36	12.96	2.52	1.44
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	98	51	32.00	7.00	21.00	6.00	5.00
Washington	277,000	—	—	—	—	—	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	53	21	30.24	5.67	20.79	—	—
Nashville	87,754	43	18	11.65	4.66	6.99	2.33	—
Charleston	65,125	—	—	—	—	—	—	—
Worcester	105,050	38	19	23.67	5.26	18.41	—	—
Fall River	96,919	—	—	—	—	—	—	—
Lowell	97,193	52	23	34.56	3.84	30.72	1.92	—
Cambridge	88,812	43	24	37.18	9.32	32.62	2.33	—
Lynn	65,220	29	19	48.30	—	31.05	—	6.90
New Bedford	62,416	29	14	31.05	10.35	31.05	—	—
Somerville	57,977	32	9	34.65	3.85	30.80	—	—
Lawrence	50,510	—	—	—	—	—	—	—
Springfield	54,790	16	8	37.50	19.75	37.50	—	—
Holyoke	42,364	25	16	52.20	4.00	48.00	—	—
Salem	36,062	17	12	23.52	—	23.52	—	—
Brockton	38,333	—	—	—	—	—	—	—
Malden	32,891	5	3	60.00	—	60.00	—	—
Chelsea	32,716	12	8	16.66	16.66	16.66	—	—
Haverhill	31,406	16	7	81.25	6.25	75.00	—	—
Gloucester	29,715	—	—	—	—	—	—	—
Newton	28,990	5	4	20.00	—	20.00	—	—
Fitchburg	28,392	—	—	—	—	—	—	—
Taunton	27,812	14	5	42.84	—	35.70	—	—
Quincy	22,562	6	2	33.33	16.66	33.33	—	—
Pittsfield	21,791	—	—	—	—	—	—	—
Waltham	21,812	6	2	33.33	16.66	33.33	—	—
Everett	21,573	—	—	—	—	—	—	—
North Adams	19,135	—	—	—	—	—	—	—
Chicopee	17,398	—	—	—	—	—	—	—
Medford	15,832	2	0	—	—	—	—	—
Newburyport	14,794	—	—	—	—	—	—	—
Melrose	11,968	2	0	50.00	—	50.00	—	—

Deaths reported 2,510: under five years of age 1,183; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 668, consumption 241, acute lung diseases 131, diarrheal diseases 507, typhoid fever 60, whooping-cough 51, diphtheria and croup 24, cerebro-spinal meningitis 16, scarlet fever 6, measles 2, erysipelas 2

From diphtheria and croup New York 16, Baltimore 4, Boston 2, Nashville and Lowell 1 each. From cerebro-spinal meningitis

New York 7, Lynn 3, Providence and Worcester 2 each, Baltimore, Cambridge, Somerville and Holyoke 1 each. From scarlet fever New York 6. From measles New York 2. From erysipelas New York 2.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWENTY-ONE DAYS ENDING SEPTEMBER 1, 1898.

MURRAY, R. D., surgeon. To proceed to Galveston, Tex., for special temporary duty. August 12, 1898. To proceed to Key West, Fla., for special temporary duty. August 17, 1898. To proceed to Tampa, Fla., for special temporary duty. August 25, 1898.

CARTER, H. R., surgeon. To proceed to Franklin, La., for special temporary duty. August 13, 1898.

WHEELER, W. A., surgeon. To proceed to Cairo, Ill., and assume temporary command of Service. August 19, 1898.

CARMICHAEL, D. A., surgeon. Detailed as chairman of board to select site for national quarantine station at or near the mouth of the Columbia River, Washington. August 18, 1898.

KALLOCH, P. C., surgeon. To proceed to Fort Pierce, Fla., for special temporary duty. August 19, 1898. To proceed to Franklin, La., for special temporary duty. August 29, 1898.

PECKHAM, C. T., surgeon. To proceed to New Orleans, La., for temporary duty. August 30, 1898.

WHITE, J. H., surgeon. Unexpired portion of sick leave granted by Bureau letter of July 30, 1898, revoked, and directed to rejoin station at New York, N. Y. August 16, 1898.

VAUGHAN, G. T., passed assistant surgeon. Granted leave of absence without pay during war with Spain. August 18, 1898.

COBB, J. O., passed assistant surgeon. Granted three months' leave of absence without pay from August 8, 1898. August 11, 1898. Leave of absence granted by Department letter of August 11, 1898, revoked, and directed to proceed to Ponce, Porto Rico, for special duty. August 19, 1898.

STONER, J. B., passed assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 16, 1898. To report at Bureau for special temporary duty. August 18, 1898. To proceed to Miami, Fla., for special duty. August 22, 1898.

STEWART, W. J. S., passed assistant surgeon. Granted leave of absence for one day September 3, 1898. August 31, 1898.

SPRAGUE, E. K., passed assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 16, 1898.

WICKES, H. W., assistant surgeon. Upon expiration of leave of absence to proceed to Cleveland, O., and assume command of Service. August 12, 1898.

CUMMING, H. S., assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 23, 1898.

PARKER, H. B., assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 23, 1898.

ANDERSON, J. F., assistant surgeon. To proceed to the Tortugas Quarantine Stat on and report to commanding officer for duty and assignment to quarters. August 26, 1898.

GWYN, M. K., assistant surgeon. To proceed to Montauk Point, N. Y., for special temporary duty. August 23, 1898.

AN ARMY MEDICAL BOARD

Will be in session at Washington City, D. C., during October next for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before October 1, 1898, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between twenty-two and twenty-nine years of age and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

GEO. M. STERNBERG,
Surgeon-General, U. S. Army.

SOCIETY NOTICES.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.— This Association will hold its eleventh annual meeting in the banquet hall of the Monongahela House at Pittsburg, Pa., Tuesday, Wednesday and Thursday, September 20, 21 and 22, 1898.

NEW YORK STATE ASSOCIATION OF RAILWAY SURGEONS.— The eighth annual meeting of this Association will be held at the Academy of Medicine in New York City, November 17, 1898, under the presidency of Dr. C. B. Herrick, of Troy.

GEO. CHAFFEE, M.D., *Secretary*, Brooklyn, N. Y.

RECENT DEATHS.

GEORGE ALBERT COBURN, M.D., M.M.S.S., died in East Cambridge, September 2, 1898, aged fifty-two years.

JOSEPH BARTLETT FOBES, M.D., M.M.S.S., died in East Bridgewater, August 30, 1898, aged eighty-three years.

BOOKS AND PAMPHLETS RECEIVED.

The Purification of Public Water-Supplies. By John W. Hill, Consulting Engineer, Member American Society of Civil Engineers, Member American Water Works Association, etc. New York: D. Van Nostrand Company. London: E. & F. N. Spon. 1898.

Observations upon the Relations between Leukæmia and Pseudo-Leukæmia. By C. F. Martin, B.A., M.D., Lecturer on Pathology, McGill University; Assistant Physician Royal Victoria Hospital, Montreal; and G. H. Mathewson, B.A., M.D. Reprint. 1898.

Branchial Carcinoma. External Esophagotomy for Impacted Foreign Body. Two Recent Cases with Recovery in Each. Question of Operative Interference in Recent, Simple Fractures of the Patella. By Charles A. Powers, M.D., Denver. Reprints. 1897-1898.

A Manual of Surgery for Students and Practitioners. By William Rose, M.B., B.S. Lond., F.R.C.S., and Albert Carless, M.A. Lond., F.R.C.S. One volume, 8vo, 1162 pages, very profusely illustrated by wood-engravings. New York: William Wood & Co. 1898.

A Manual of Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D., Clinical Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. With 386 illustrations. Philadelphia: W. B. Saunders. 1898.

Handbook for the Hospital Corps of the U. S. Army and State Military Forces. By Charles Smart, Deputy Surgeon-General, U. S. A. Approved by the Surgeon-General of the Army. Second Revised Edition. 12mo, 358 pages, illustrated. New York: William Wood & Co. 1898.

Wounds in War. The Mechanism of their Production and their Treatment. By Surgeon-Colonel W. F. Stevenson, Professor of Military Surgery, Army Medical School, Netley, England. One volume of 588 pages, 8vo, profusely illustrated. New York: William Wood & Co. 1898.

A Manual of Bacteriology, Clinical and Applied. With an Appendix on Bacterial Remedies, etc. By Richard T. Hewlett, M.D., M.R.C.P., D.P.H. (Lond.), Assistant in the Bacteriological Department, British Institute of Preventive Medicine, London. Philadelphia: P. Blakiston, Son & Co. 1898.

The Mental Affections of Children: Idiocy, Imbecility and Insanity. By William W. Ireland, M.D. (Edin.), H. M. Indian Army (Retired List), Corresponding Member of the Psychiatric Society of St. Petersburg and of the New York Medico-Legal Society, etc. London: J. & A. Churchill. Edinburgh: James Thin. 1898.

On the Stages and Forms of Syphilis, with more Especial Reference to the Hepatic Manifestations of the Disease. Upon the Existence of a Minute Micro-Organism Associated with Cases of Progressive Portal Cirrhosis. By J. G. Adami, M.A., M.D., F.R.S.E., Professor of Pathology, McGill University, Montreal. Reprints. 1898.

Manual of Physical Diagnosis for the use of Students and Physicians. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania and Physician to the University Hospital; Physician to the Philadelphia Hospital, etc. Third Edition, revised and enlarged, with colored and other illustrations. Philadelphia: P. Blakiston, Son & Co. 1898.

Medical Diagnosis, a Manual of Clinical Methods. By J. J. Graham Brown, M.D., F.R.C.P.E., F.R.S.Ed., Assistant Physician to the Royal Infirmary, Edinburgh; Lecturer on the Principles and Practice of Medicine in the School of Medicine of the Royal Colleges, Edinburgh. Fourth edition, revised and enlarged. With 112 illustrations. Philadelphia: P. Blakiston, Son & Co. 1898.

Lecture.

TALKS ON THE HISTORY OF MEDICINE.[1]

No. IV. — PRACTICAL MEDICINE IN THE SEVENTEENTH CENTURY: SYDENHAM.

BY DAVID HUNT, M.D., BOSTON.

WE have seen that ancient medicine was hardly more than a parasitic attachment of ancient philosophy; at the Renascence we found physiology continuing this relation, with perhaps more life and activity, while Vesalius with a genius, not even yet fully appreciated, really began the foundations of modern medicine. It was Harvey, who, continuing the methods of Vesalius, did more than any one man to make physiology a possibility.

When we attempt to follow the development of practical medicine during the succeeding epoch we discover certain plausible generalizations which having passed current for centuries seem to be established truths. The principles of medical history have been, at least in England and America, deduced mostly from these generalizations. They may be stated as follows: Bacon restored the sciences and established the inductive method, Harvey followed it and established modern physiology; Sydenham, our great medical fetish, reformed practical medicine by continuing the lines so established. Nothing can be farther from the truth than these generalizations, they rest upon a confusion of philosophical and scientific truths and have resulted in numerous misconceptions of medical relations according to which great men and principles have suffered from neglect, and plausible mediocrity has been unduly honored.

The modern scientific estimate of Bacon agrees fully with that of Harvey, "he wrote of science like a Lord Chancellor." He was very ignorant of methods of science and of research. Harvey, conscious of the work of Padua, and of his own long-continued labors in demonstrating the circulation, and in his observations in embryology, felt a sympathy with the methods of Vesalius, Copernicus, Kepler and Galileo which Bacon, ignorant of mathematics and of laborious research in nature, could not feel. It is easy now to see that Bacon's prosaic, routine use of the senses alone, his neglect of proper verified deductions, constituted a philosophical defect which a real observer was bound to feel even if his philosophical culture had not attained that degree of perfection which enabled him clearly to express it. Tyndall has stated the gist of the matter, "The domain of the senses in Nature is almost infinitely small in comparison with the vast region accessible to thought which lies beyond them." Bacon's merit as a philosopher in throwing off the old metaphysical bondage will always remain; his greatness and his littleness are secure; anything like an estimate of him would include a study of Descartes and his successors as well as a thorough study of his doctrines in the line of philosophers who are his lineal descendants. We must content ourselves in this relation with the statement, that while Bacon pointed out fully the importance of the study of nature he had only the crudest and narrowest ideas as to the methods of research. Harvey's and Newton's practical disregard of his teachings in this direction are but confirmations of their true estimate of them, estimates wholly in accord with those of modern scientific thought. In fact modern medicine, resting as it does mainly upon principles derived from great verified deductions, is itself the best example of the insufficiency of Baconian methods.

Six years after Bacon's death (1632) John Locke was born. Americans will never forget his services for liberalism in politics and philosophy: "The Fundamental Constitutions for the Government of Carolina" has fixed his name among those of the greatest of our founders. His philosophical work fixes his place among the leaders of English enlightenment; his medical connection is with Sydenham; unfortunately in this connection we have to deal chiefly with his weakest side. This we shall see by looking at Locke and Sydenham together. For a time they were almost partners; Locke's view of the methods of induction, of the supreme importance of the senses, exaggerated all the defects of Bacon's doctrines as applied to scientific research; Sydenham's strong, practical, but uncultivated common-sense, was readily captured, and together they represented a philistinism which has held nearly supreme control of English medicine.

In H. R. Fox Bourne's "Life of Locke" (page 228, Vol. I) a fragment of a paper by Locke and Sydenham on "Anatomy" is quoted. A part in Sydenham's handwriting reads as follows: "Others of them have more pompously and speciously prosecuted the promotion of this art by searching into the bowels of the dead and living creatures, as well sound as diseased, to find out the secret of discharging them, but with how little success such endeavours have been and are like to be attended, I shall in some measure make appear."

Locke continues as follows: "But that anatomy is like to afford any great improvements to the practice of physics, or assist a man in the finding out and establishing a true method, I have reason to doubt. All that anatomy can do is only to show us the gross and sensible parts of the body, or the vapid and dead juices, all which, after the most diligent search, will be no more able to direct a physician how to cure a disease than how to make a man; for to remedy the defects of a part whose organized constitution, and that texture whereby it operates, he cannot possibly know, is alike hard as to make a part he knows not how is made." (Dated 1668, Locke 36, Sydenham 44 years old.)

We may leave Locke to the philosophers; as to Sydenham, any one who will be at the pains to read his works carefully will find that he never rises above this medical philistinism. Harvey, Willis, Highmore, and all who were truly great in seventeenth-century English medicine had no significance for him; he knew next to nothing of the science of his time; he was extremely unfair to his brother practitioners, men whose practice in the main was as good as his own,— his is one of the most overrated reputations in medicine.

As far as the science of medicine is concerned one is tempted to say he had no relation; he probably knew less of seventeenth-century science than any physician whose name has come down to us. It is not without significance that the name of Hippocrates is always on his lips; the simple art which was a merit two thousand years before his day, when it meant a rejection of the word-play of the philosophers, was an altogether different matter in the blooming science of Sydenham's time. The fact that his reputation lasted up to the

[1] A course of four lectures delivered by invitation before the Harvard Medical Alumni Association, February, 1898.

date of the formation of the Sydenham Society is suggestive in relation to the history of English medicine; the fact that since the days of Lyell, Huxley, Tyndall, Darwin and Spencer we have heard much less of Sydenham and of the Hippocratic method is equally suggestive. A study of the cause of his waxing and waning fame would include a thorough study of the history of English medicine. Let Sydenham speak for himself as to his art:

"The only causes that can be known to us, and the only ones from which we may draw our indications of treatment, are those which are proximate, immediate and conjunct.

"As it is clearly impossible that a physician should discover those causes of disease that are not cognisable by the senses, so also it is unnecessary that he should attempt it.

"The brain is the source of sense and motion. Yet no diligent contemplation of its structure will tell us how so coarse a substance (a mere pulp, and that not over nicely wrought) should subserve so noble an end."

Having given these extracts as evidences of Sydenham's conceptions of medicine let us look to his practice, and first, in small-pox upon which so much eulogy has been spent. The most striking fact in this connection is the poor description; he is really tripped by his notable unfairness to his fellow practitioners; in the interest of "cool treatment" he gives a picture of the disease which lacks all vitality in color and drawing. Read it as carefully as possible and you will see that he gives only the coarsest characterization of a discrete and confluent kind; there is no account of the numerous complications, everything not included in his meagre and too favorable account of the disease is caused by the bad treatment of other physicians, yet Dr. Whittaker at the same time or a little earlier gave as good or as poor a description and the same "cooling" treatment. Sydenham regarded the ptyalism and the diarrhea when occurring in this disease as nature's efforts at relief, and with no apparent suspicion of a cause other than what appeared by his superficial observation he forms his therapeutic methods according to his guesses. All the phenomena suggest to him, as he puts it, the "idea of inflammation; of an inflammation specifically different from all others; of an inflammation both of the blood and humors. In cleansing herself of this Nature is at work during the first two or three days, striving at the digestion and concoction of the inflamed particles, with the intention of afterwards discharging them upon the surface of the body, for the sake of maturation, and finally of expelling them from her boundaries under the form of little abscesses.

"With these premises two indications of treatment present themselves: (1) The ebullition of the blood must be kept to a regular rate, so that it neither hurry over the work of separation too quickly and too violently, nor yet check it by any torpidity of movement. Still less must it work it out insufficiently. (2) The little abscesses, or pustules, must be carefully kept up, so that they may go through their proper stages, void the matter that they contain, and, finally, themselves disappear."

It is difficult to find in Sydenham's conceptions anything constituting the wonderful advances attributed to him in this disease; his hypotheses are all as old as the Arabians; his descriptions are not anything beyond the best of his time, and his physiology and anatomy are far below the level of a number of his contemporaries. As to complications, he refers incidentally to inflammation of the eye, but he gives no description and merely speaks of it as an indication of a violent inflammatory nature of the disease which should be met by a "blood letting" about the "one-and-twentieth day"; he had a notion of having the patient out of bed a few hours every day, and he pushed this idea to a decidedly dangerous limit in small-pox, scarlatina and rheumatism.

He delivers himself as follows as to "Intercurrent Fevers": "Now, since the different species of these fevers originate in peculiar inflammations of the blood, different for different diseases, I make my whole practice turn upon its regulation and moderation; I vary my method with the ailment, and apply to the elimination of the morbific matter that treatment which experience has appropriated to each kind of disease. The full and perfect practitioner is he who knows how the febrile matter enters the system and how it is to be ejected, whether by bleeding, by sweating or by purging. This is the result of careful consideration of the phenomena of its therapeutics" (page 242, Vol. I).

Of venereal diseases, he says: "A century ago, however, it took the form of a virulent gonorrhea, and this is the form it takes now. In such cases, the most manifest symptom is the presence of a small ulcer, commonly called a 'shanker,' on the private parts, this being the first sign of the disease. In case, however, the virus be not sufficiently eliminated by means of the gonorrhea, the mass of the blood is quickly tainted and pervaded. Beware of astringents in gonorrhea; they cork up the virus in the system, and lues is the result."

In his old age he shows at his best in his treatise on dropsy; he regarded the cause as a "weakness of the blood" which "is not able to convert into its own substance the matters taken as aliments from without." He begins to gain an idea of the importance of anatomy; his favorite ideas of the "ebullition of the blood," of concoction, putrefaction, etc., do not aid him in explaining the phenomena of this "cold disease," and he observes "I will state plainly, that, as far as I can discover by the most attentive thought, and from what I observe in practice — the touchstone of those who profess medicine — it is very necessary for a physician to know well and thoroughly the structure of the human body, so that he form true ideas concerning nature, and concerning the causes of certain diseases. How can one who knows not the structure of the kidneys, and the ducts that lead from them to the bladder, see his way to those symptoms which arise from a calculus, impacted either in the pelvis or the ureters? A surgeon should know anatomy equally, otherwise how can he in his operations avoid vessels and other parts which he should keep clear from; and which, if divided or injured, will kill the patient? Nay, he cannot even set a limb, or reduce a dislocated joint to its natural position unless he have curiously inspected and well understood the bony framework of the body which is called the skeleton.

"So necessary is this knowledge that he who wants it is like a man fighting blindfold, and a mariner without a compass. Moreover, the knowledge is easily obtained; and in comparison with many other more difficult studies, may be reached by a short road. It may be learned well and thoroughly by dissection —

either of human bodies or the bodies of brute animals; and that easily, and by men whose wit and judgment are limited. Nevertheless, in all acute diseases — and two-thirds are acute — we must fairly own that there is in their nature, θειον τι some specific property which no speculations deduced from the contemplation of the human frame will ever be enabled to discover and exhibit. Hence I think that all which was meant by Hippocrates was this: That men should not spend their labor in dissections only, but that they should rather promote the art of medicine by the diligent observation of natural phenomena, especially the juvantia and lædentia. I do not for an instant believe that he undervalued or depreciated a general knowledge of the structure of the human frame. . . . So much is human genius limited by the limits of human nature, that we must know what our five senses teach. Prudent, a man may be; a philosopher, in the most august sense of the term, no man can be. The whole philosophy of medicine consists in working out the histories of diseases, and applying the remedies which may dispel them; and experience is the sole guide. This we obtain by observing (as noted elsewhere) the method that right reason dictates — the suggestions of common-sense rather than of speculation."

We may get a good idea of the manner in which Sydenham impressed the regular practitioners of his time from a treatise by Henry Stubbe, entitled "The Lord Bacon's Relation of the Sweating-Sickness Examined in a Reply to George Thomson, Pretender to Physick and Chymistry, Together with A Defence of Phlebotomy, In General and also particularly in the Plague, Small Pox, Scurvy and Pleurisie. In opposition to the same Author, and the Author of Medela Medicinæ, Doctor Whittaker and Dr. Sydenham, etc. by Henry Stubbe, Physician at Warwick." London, 1671.

The gist of Stubbe's book is something as follows: George Thomson, who pretends to dissect bodies of those dead of the plague, to study in short *à la* Bacon, this objective side of the matter, is an ignorant apothecary, with a purchased degree, who makes no mention of, and pays no respect to, all the records of the Greeks and Arabians; he is no artist. Sydenham, with his old nurses' tales as to the treatment of small-pox, is of the same class; he is too ignorant of medical literature to realize how foolish he appears in gathering these precepts of popular practice and presenting them to our learned profession as a novelty, although Dr. Whittaker has said it all before him. Both are victims of the prevailing appetite for novelties, created by that arch innovater Bacon, whose character was no better than it should be. As to the discovery of the circulation, I was surprised to find that the effects of blood-letting were just what, by Harvey's hypothesis, it should be, so that if our old principles were false our practice was just right, and I reasoned that if the circulation of the blood and other modern discoveries taught us the same practice we were already following it was useless; if, on the other hand, it contradicted our practice it was false.

In the course of a few pages Stubbe mentions the names of Lower, Highmore, Glisson, Needham, Willis, Riolan, Mœbius, Schenck, Blondel, Forrest, Becher, Simon Pauli, Regne de Graaf, Bartholin, van der Linden, Columbus, Spigelius, Vesling, Coyter, Vesalius, Fernelius, Malpighi, Pecquet, Reusner, Plater, Sanctorius; he is acquainted with their researches and practice; he quoted the embryologists as to the formation of the blood in the embryo; he disposes of Servetus's idea of the blood as the seat of the soul in a very creditable manner.

Let us endeavor to put ourselves in his place in judging Sydenham who rarely mentions a medical author excepting Hippocrates; who, as a fact, made no contribution to the science of medicine, and who, in his art, in spite of all the eulogies which have been lavished upon him, was not discernibly above, if on an equality with, the best of his time; who exaggerated in a most aggravating manner the errors which he *thought* he saw in his fellow practitioners; who ascribed in a very unjust manner all aggravations of diseases, like small-pox for instance, to their alleged false treatment, intimating strongly that with his improved method such aggravations never occurred — all of which we now know to be absurd; who, as Stubbe says, taught nothing of the dangerous complications affecting the eye, throat, lungs and intestinal tract in this disorder. Honestly, no doubt, in love with his own prescriptions, as absurd in their polypharmacy as the average of the time, squinting, perhaps, more than most physicians to popular and domestic remedies but making of them a jumble, as though he thought some of them must hit the case; neglecting all the fruitful suggestions which anatomy and physiology were at that time so richly furnishing; ignorant, arrogant, honest, narrow, a sort of Dr. Johnson in medicine, without his learning, confident in his one-sided conceptions of Locke's ideas; in short, a man who saw the outside imperfectly and guessed at the inside as freely as the rest of the profession; hiring Dr. Havers and Mapletoft, as Stubbe openly charges, in his lifetime, to do his Latin translations when Latin was the common tongue of the profession; who is always talking Hippocrates, and boasting of imitating him, forgetting or ignorant of all that had happened in the two thousand years between them. Putting ourselves in the position of the seventeenth-century practitioner, I think we might justly challenge comparison between the great Sydenham and the unknown Stubbe and, as far as medical matters are concerned, find as much to admire in the one as in the other.

Sydenham and Stubbe were both in error. The former, no doubt influenced by a praiseworthy feeling of liberalism, applied his common-sense to problems which it was incapable of solving; his immense confidence in his views as to the art of medicine led him to an almost complete neglect of the science of his day — he shows this incidentally by his absolute confidence in Hippocrates as a model. As we have seen, there was nothing more than the art possible for Hippocrates; there was no science of medicine; but a full century after Vesalius there was no excuse for Sydenham's ignorance and indifference, not even the excuse of custom, for the best men of his time were continuing the noble work of Harvey.

To argue that an attempt to use the science of his day might have resulted in errors in practice, that it might have led him to false hypotheses, is like criticising the mistakes of Tyco Brahe, Kepler and Galileo, though they led up to Newton. But what did Sydenham's conservatism amount to? It merely resulted in his using the worn-out hypotheses of the Arabians and the aphorisms of Hippocrates: his observations were as superficial as though made in the time of his great master. "I am writing histories, not solving prob-

leme," he says; but since the days of the ancients problems had been stated by Vesalius, by Harvey, by Willis, Glisson and a host of earnest students, of which the best interests of the science of medicine demanded a solution. The reputation of the English Hippocrates can only be preserved by ignoring all the progress which our science had made during the two thousand years which had elapsed from the time of the real Hippocrates. If Vesalius and his followers and Harvey and his successors are worthy of honor, Sydenham deserves less of a place than has been accorded him in our annals. Sound progress in the art of literature has been favored by an improved, historical basis for criticism; probably progress in the art of medicine will be aided by a reversal or a change in many of our past opinions.

Stubbe's error was different. Sydenham idolized his common-sense; Stubbe made an idol of conventional, professional learning; his estimate of Harvey's great discovery shows that he had no real appreciation of the science of medicine. In Paris at this epoch lived Guy Patin, one of the most spirited and gifted of the physicians of his day. His name is chiefly preserved by his charming letters which exhibit an intense humanity, a sympathy with all that was grand in French Protestantism; he was a tender father, a proud and faithful citizen, a devout man in the best sense, but his medical philistinism was as narrow as that of Stubbe's; he simply hated antimony and the Jesuits' bark; he would hear nothing of the circulation of the blood; he adored Fernelius and Riolan; he worshipped the classics; he wanted nothing more in practice than bleeding and purging. Stubbe and Patin were of the same medical stripe; neither had an idea of the vital meaning of the facts of the science of their day as they concerned medical practice or medical teaching; they were up to date in their information, but they were as much philistines as Sydenham in all that related to progress; none of them seem to have had a notion of the grand movement by which the increase of science was crowding out the dogmas which had so long cursed our profession.

All this misunderstanding was not confined to the seventeenth century; only a little more than a quarter of a century ago Dr. John Brown treated of Locke and Sydenham in a manner that almost as completely ignored the existence of a science of medicine; he held up Hippocrates as a practical model to the physician with the same good faith in which he accepted Dr. Adams's ideas as to medical history. He eulogized Sydenham as a pattern of medical virtues and in so doing he exercised an injurious influence, great, since it was proportioned to his charming art. As a contrast, in 1877, nearly at the same time, Virchow wrote as follows: "Thirty years ago the Hippocratic method was still spoken of as a something so elevated and so important that nothing more holy could be conceived of. To-day it must be said that this method is destroyed almost to its root."

When Virchow wrote that the Hippocratic method was destroyed in Germany, he described the result which the development of the science of medicine had produced; he, no doubt, had a truer admiration of Hippocrates, in his environment, than many who made that name a shibboleth for simple empiricism. But the method of Stubbe and Patin were not covered by the term "Hippocratic"; they were learned in the science of their day, yet, as we have seen, their relation to medical progress was hardly more sympathetic than that of Sydenham. The latter would have carried medicine back to the epoch when it was a simple art; the former would have tied the profession to the present. We can look back to the seventeenth and eighteenth centuries and see the facts plainly; a retrograde movement was hardly more to be dreaded than a static condition; the former might, carried to a certain extent, produce a reaction, the latter meant no movement. If the retrograde movement has been destroyed "almost to its roots" how are we related to the conventional and traditional views which tie us to our present?

Let us attempt to answer this question by a brief sketch of the development of modern embryology and its relations to medical methods and medical progress in Germany.

At the very beginning of the seventeenth century, the great teacher of Harvey, Fabricius ab Aquapendente, began in earnest the modern study of embryology; Spigelius, Harvey, Needham, de Graaf, Swammerdam, Leeuwenboek, Ruysch, Havers and Malpighi continued his work to the beginning of the eighteenth century; then the movement received something of a check during the controversy of those who debated whether the embryo was præformed complete in all its parts, in the ovum, or whether the parts were developed from a simple germ contained in it. Casper Friedrich Wolff solved the question, and, overturning Haller's and Leibnitz's views of the existence of the præformed 'animalcule,' he made modern embryology a possibility. Such were the results which followed Wolff's demonstration of the formation of a complete organ from a blastodermic layer; it was one of the most striking medical achievements of the eighteenth century. Wolff died at the end of the century and it seemed as if his great discovery died with him. In 1806 Oken published a similar account without knowing the work which Wolff had accomplished before him. Thus it is perfectly evident not only that the profession took no notice of the work of Wolff, but that even the special workers in embryology had overlooked it. Hunter's work made as little impression upon the medical profession in England. Sömmering found an appreciative student in Goethe but not in the profession (in passing, it may be said that the scientific connection of Goethe and Sömmering offers much of interest to those who wish to gain a thorough understanding of the many-sided poet and philosopher). Pander did all in his power to call attention to Wolff's merit, and then came the great Carl von Baer, one of the greatest names in the history of the sciences of development. Müller, Wagner, Wharton Jones, Allen Thomson, Valentin, Burdach, Prevost, Dumas, Coste, Rathke, Reichert, Bischoff and their co-workers formed a noble line leading to the innumerable workers of our own day.

Now if we take any epoch in this highly important movement, intimately connected as it is with our underlying sciences of anatomy and physiology, we shall find that medical practice and medical teaching were as little related to it as the medicine of the latter half of the seventeenth century was to the discovery of the circulation or to the embryological work of that day. This is not saying that medicine gained nothing. After Schwann had shown that the tissues were made up of cells, an important fact derived directly from

embryological research, his notions that they were independently-formed elements were corrected by Reichert and Kölliker, who established what then was regarded as a universal truth, that all cells were descendants of parent cells. Then, Virchow, accepting this discovery, applied it to pathology; with the cellular pathology the medical profession to a great extent rested as far as the application to the teachings of embryology are concerned. Medicine was made immensely more scientific, particularly in Germany, but with all her research, her laboratories and her scientific accumulations, has she made anything like the improvements in methods, particularly of the teaching and practice, that might rationally be expected to follow the development of embryology? No one can doubt, who is at all conversant with embryology, that it has created an entirely new conception of the study of anatomy. Tiedman demonstrated this fact before most of us were born, in his sketch of the anatomy of the brain; he showed how to make the incomprehensible comprehensible; the same statement applies equally to the anatomy of the eye, to all the viscera, and, in fact, to the anatomy of the body in general. Then embryology adds immensely to our understanding of innumerable enigmas connected with the correlation of parts of our anatomy. Sympathies and associations in diseases which form the standpoint of anatomy, as usually studied, were mysteries become plain when the associations of the forming parts are studied. These things being true does it not naturally follow that methods of teaching anatomy should have been wholly made over? Gegenbaur has said that no simple collection of facts such as anthropotomy or zoötomy furnishes can be called scientific; but a history of the formation of the parts and the many comparisons which they facilitate, together with the principles furnished by which the isolated facts may be ordered, furnish scientific relations of the utmost importance; these make anthropotomy or zoötomy scientific. This being allowed, it would, it seems to me, follow that the German student of medicine should learn the *methods* of zoötomy upon the plentiful material which the domestic animals furnish; that complexities of the developed organism should be made plain by simultaneous study of their formation; that histology and histological methods would be naturally taught in the process and, incidentally, that the saving of human material should enrich the departments of topographical and surgical anatomy. The improvement might not follow the lines we have sketched but something of the sort would probably have been almost as fruitful for the profession as the undoubted advance which has resulted from the establishment of cellular pathology. It would probably have aided the application of that great discovery. But as no German school has attempted such a change in its methods of anatomical teaching we may be mistaken, and nineteenth-century medicine may not, like seventeenth and eighteenth century medicine, be living in close contact with a mass of scientific material which it does not fully use as reason and science would seem to show they might be used. If, however, nothing more than existing traditions and conventionalities stand in the way of some such change they are influencing us as they influenced Stubbe and Patin in the seventeenth century; surely changes as revolutionary have been made in teaching geology, botany and other disciplines; in some universities indeed something like these methods are used by students of psychology in gaining a knowledge of the structure and function of the brain.

Almost all medical historians have alluded to the ultra conservatism of our profession as Sprengel has in the following quotation: "But alas! it has been the fortune of our art to be almost the latest among all departments of human learning to be illuminated by the beneficent beams of enlightenment." It is our purpose here merely to throw out suggestions; a proper discussion of many statements made would occupy more time than we can devote to any of our talks; here, then, may we suggest that if a germ of truth is contained in any of these ideas the scientific study of medical history is one of the most powerful means for furnishing us an estimate of it and for directing us in the cultivation of it.

Medicine and astronomy are about the only sciences with histories reaching back to the golden age of Greece; how different their histories make the development of these sciences appear; scientific facts have been gradually added to medicine in a manner so isolated and separated that they have floated for a long time on the great stream of dogma and tradition before enough of union and coherence has been established to furnish material for rational deductions. Astronomy, on the other hand, has often been presented with an abundance of great observations, sources at once of the most important and far-reaching deductions. These facts of development cannot be changed, but extra effort in the study of our history might enable us by conscientious effort to acquire and establish principles much sooner than in the natural course of events they would come to be accepted; these attempts would aid the establishment of medical logic, and directly favor the advance of practical medicine.

There are numerous illustrations of this statement, but one striking one, which will excite the astonishment of the future historian, occurs to me in a question which for many years has agitated what is. I think, the most scientific portion of modern medicine; I refer to the question as to the causation of myopia among the opthalmologists. Monograph after monograph has been written to prove this, that or the other hypothesis as to the causation of myopia; the lives of hundreds have been made miserable by the insistence upon notions derived from the acceptance of this, that or the other hypothesis of causation, and by the exaggeration of this, that or the other accompanying symptom or condition; schools have been accused of causing what in all probability they simply aggravate, since school life happens to coincide with the period of life in which myopia develops; but it is perfectly obvious that this statement of the question is one-sided and illogical. The question was stated in its present form for the reason that the trouble was prevalent in Germany and it interfered considerably with the development of the German army. The question from the first should have been, What causes the variability of the human eye? Myopia is but one phase of this variability; daily practice and the common but neglected annals of the manufacture of glasses would show that the increased use of glasses is of all kinds, convex and cylindrical as well as concave. Myopia is but one phenomenon of the variability of the human eye among civilised races. It is evident that to the question thus stated entirely different conceptions of causes would be formed; mechanical causation is at once ex-

cluded almost altogether; the same statement is true as to the exercise of the functions of the organ, unless all physiological doctrines are to be thrown overboard; but exclude these causes and you exclude the mass of primary causes. The variability of the eye then becomes probably included under what Darwin has treated of so luminously as secondary variations and the history of the variations of the lobes of the cerebrum; the consequent variations of the orbit, the resulting changes thus caused in the parts which go to form the globe shed a flood of light on the matter. Incidentally we are comforted by the assurance that as a secondary variation it is fixed within limits which it has not progressed beyond in several thousand years and probably will not in the next hundred thousand. But we have gone beyond our proper limits in treating of a solution of this question on this occasion; our purpose was to call attention to an illogical statement of a question, to a partial statement rather, and to insist that such statements often defeat the solution; the knowledge of the laws of the cycles of planets could not have been deduced from a statement which presented the cycle of one planet as subject of the solution. We have chosen a striking example, but modern medicine presents many such half-stated problems. Scientific study of medical history is the most direct and most valuable means of founding a medical logic that will help us in correcting this too natural tendency.

There is one other subject connected with practical medicine which will illustrate another benefit which we may hope to derive from a study of medical history.

The marvellous advance of bacteriological science has made its relations a matter of serious thought to the profession at large. Will the sudden influx of new methods and new material cause a lack of balance, so to speak, resulting in the neglect of even more important researches? Many have thought so; many fear the results upon practice; from such fears grow prejudice and hostility. How reassuring is the study of our history, which displays the value of every increase of science and which teaches us plainly that any interference with symmetrical professional development should be met by a more active and thorough cultivation of neglected truths rather than by unscientific prejudices against new truths.

We have tried to show that medical history as it now exists contains many misstatements and misconceptions; that these not only do injustice to our greatest benefactors but that they also favor a false regard for those whose reputations have been for the most part chance products. We have regarded these erroneous judgments as signs of an undeveloped condition of medical history, which is properly a branch of the science of medicine; that as such it is valuable as an antidote to our natural conservatism and an addition to the body of science which is destroying old dogmas and traditions; that it is a natural source of improvement in logic which will directly lead to a better statement and a readier solution of many medical problems; that it also is a natural corrective of lack of balance in our development and that in this relation it is highly important in these days of rapid growth.

If medical history is a branch of medical science, as general history is a branch of general science, it is surely neglected; but the practice of medicine is related chiefly to the latest acquisitions of the sciences of our own day. There is but little in it which naturally suggests historical methods, as there is in the practice of law, for instance; hence it more than any part of our science demands the fostering care of those who have the higher interests of the profession in their hands, interests often lost sight of in the cares and struggles of everyday life and practice.

Original Articles.

CORRECTION, BY OPERATION, OF SOME NASAL DEFORMITIES AND DISFIGUREMENTS.[1]

BY GEORGE H. MONKS, M.D., BOSTON.

It is not my intention to take up the time of the Society by reading a long paper which pretends to cover the correction of all possible deformities of the nose by operation. I propose simply to call your attention to a few of the ordinary deformities and disfigurements, and to briefly refer to some cases which illustrate the results obtained by certain operative procedures, some of which procedures are new and some old.

It is hardly necessary, I think, for me to dwell on the desirability of doing such operations. After considerable experience I have become convinced, as probably most of you have, that few patients suffer more of mental discomfort than the unfortunate possessors of some unsightly disfigurement on the face which attracts constant notice, few are more solicitous for any operation which promises relief, and none are more grateful for the slightest improvement in their condition.

The first subject I shall speak of is

VENOUS AND CAPILLARY CONGESTION OF THE NOSE,

what is known as "Red-nose" or "Toper's Nose."

One meets with all degrees of this form of passive hyperemia; but the variety which is permanent, and especially that kind which is associated with numerous visible and arborescent vessels, often reaching w ll back upon the alæ, is usually very annoying to the person affected, especially if he be of a sensitive temperament, and often prevents his getting employment on account of a supposed alcoholic tendency.

In such cases much can be done in the way of treatment, by destroying the little vessels by *scarification* or *electrolysis;* but in order that the effects shall be permanent the treatment must extend over many sittings and must be conscientiously carried out.

To properly scarify such a nose, it should be first of all thoroughly cleansed with soap and hot water; then firmly squeezed between the thumb and finger of the left hand, and a few minims of a weak cocaine solution injected. When the part is no longer sensitive to pain, multiple incisions should be made in different directions all over the affected area with a small sharp knife (see Fig. 1). These cuts need not be very long but should all be deep enough to divide the superficial vessels, whose trunks may often be seen through the skin. If the patient will keep in the house for a few days afterwards, the whole of the reddened area may be thoroughly scarified at the first sitting, after which the surface may be cov-

[1] Read before the Massachusetts Medical Society, June 7, 1898, and recommended for publication by the Society.

ered with cotton and collodion and the escaping blood allowed to dry and form a crust under it. If the patient, however, cannot keep quiet for some days, only a few of the largest vessels should be divided at a sitting. In any case the operation will have to be repeated several times, before a satisfactory and permanent result is secured. Though there is reason to believe that the continuity is restored in many of the divided vessels, yet the contraction of the fibrous tissue which forms in all the little incisions will at least prevent the part from returning to its former condition of vascularity.

This congested condition at the tip of the nose can be treated equally well by electrolysis,— indeed, some surgeons prefer it, and claim that by its use less scar results than is the case when scarification is used.

HYPERTROPHIC ACNE

is a condition which is occasionally seen on the nose, and always interests the surgeon, though unfortunately few cases are induced to come to operation.

Some years ago a man with an enormous enlargement of the end and alæ of his nose, due to one form of this condition, came to me, asking for an operation



Fig. 1

Thorough scarification at the end of the nose.

to relieve his deformity. He stated that he was unable to get anything to do in the way of work, as everybody thought him a drinker, which he certainly was not. The whole nose, but especially about the end of it and the alæ, was greatly thickened, nodulated and reddened, with here and there acne pustules in all stages. All over this area little depressions or pits were to be seen, representing the openings of the sebaceous follicles, and from all of these long worms of sebum could be squeezed out. After thoroughly cleansing the parts, I split the skin and underlying tissue of the nose down the middle line for its entire length, from base to tip, turned back the two flaps to the sides and removed all the subcutaneous tissue I could get hold of. I then replaced the flaps and sewed them together. The alæ, which projected like two small cherries from the sides of the nose, were also treated in this same way, and so much underlying tissue was cut away that the nose was considerably diminished in size. Although the result was not so perfect as one might wish, it showed at least a distinct improvement, and the man was apparently perfectly satisfied.

Some time after this operation I described it to one of my colleagues, and showed him the case. He seemed much interested, and was pleased when, some months later, a similar case came under his own charge. He operated upon the man by the procedure which I had employed. Imagine his disgust, however, when, soon after the operation, the flaps sloughed! I fancy he had been more radical in his operation

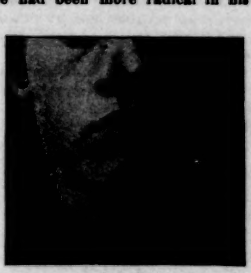


Fig. 2.

than I should have dared to be, and did not leave enough tissue for his pedicles. In time, however, the dead flaps separated, and left the nose without any cutaneous covering, the raw surface granulated, and finally cicatrized; and the man was ultimately glad to possess a small, thin, white nose (even if it was nothing but the framework of a nose, covered with one enormous scar), in place of the large, reddish, nodulated organ which he formerly had, and he (who, by the way, thought that the sloughing process had been intended as a part of the operation), pronounced the result a complete success! Referring to the result of his operation, my colleague suggested that the best treatment for these cases was probably, after all, simply to pare them down with the knife to the desired size and shape, and leave the raw surface to granulate. I should seriously consider doing this very thing if another of these extreme cases should come to me, only I should certainly prefer to cover



Fig. 3.

the raw surface with skin grafts rather than to leave it to granulate.

BIFID NOSE.

This is a congenital condition, though a rare one. It would appear in these cases that during the developmental period of life the two halves of the nose fail to approach sufficiently near each other in front, and for

this reason a long vertical depression remains in the middle line. This depression is permanent, and causes a very noticeable deformity. It of course belongs to that large group of malformations known as "defects in the median line of the body."

Some years ago I operated upon such a case. The patient, who was sent to me by Dr. Gilbert N. Jones,



FIG. 4.

then of Gloucester, was a young girl of fourteen years (see Fig. 2), who had always been particularly sensitive about the deformity; her acquaintances having done their best that she should not forget it. I removed an elliptical piece of skin and underlying tissue from the depression, brought the two sides together, and united them with buried and superficial stitches. The result was very satisfactory, for instead of the peculiar double-pointed nose (see Fig. 4), which attracted so much attention wherever she went, she now had a nose that was normal in appearance, except for a slight scar in the median line. (See Figs. 3 and 5.)

DEFORMITIES DUE TO OLD INJURY.

We frequently meet with noses deformed by injury in which the displacement occurring at the time of the accident has been allowed to remain unreduced. The appearance of such injured noses naturally varies;



FIG. 5.

they may be bent, twisted or depressed, or there may have been loss of substance. Probably the commonest form is that in which there is a certain deviation of the bridge to one side or the other. The upper or bony part of the bridge may deviate, or it may be straight while the lower or cartilaginous part may be deviated, or the entire nose may be pushed to one side or the other. Such conditions may be congenital, but they are far more frequently due to some blow or fall. While in certain cases the nasal bones are undoubtedly fractured, and perhaps also the septum, I think it probable, judging from many of the cases I have seen, that the cartilaginous part of the nose is quite frequently torn away from the nasal bones, for in many cases where the nose has been injured we later see a bunch, indicating probably a new bone formation, on one side of the nose at a point exactly where the bony and cartilaginous parts should join.

I have operated upon one such case by chiselling off the little bony hump through a small incision in the skin at one side of it. The patient expressed himself as pleased with the result. Although the procedure was satisfactory in this special case, I felt that it would not do in all cases, for one meets with many of them where the bony projections on the bridge are so large that they cannot be cut away without making very large incisions, and also running the risk of opening into the nose and thus leaving a permanent hole through the bone.

In seeking to discover some means of fracturing the bony bridge of a nose without bruising or cutting the skin, I devised a method which has worked very well indeed. After the patient is under an anesthetic a small incision is made just beneath the tip of the nose,



Fig. 6

Showing the incision just below the tip of the nose — being the opening of the tunnel leading upward to the area between the skin and the framework of the bridge of the nose.

its axis being continuous with that of the columna. Through this incision the points of a small pair of blunt-pointed scissors are inserted. It is now found that by opening and closing the scissors laterally so far as the limited size of the incision will allow and pushing them upwards the points of the scissors can be made to travel in that direction, and a narrow pathway or, more properly speaking, a long flat tunnel is cut in the tissue between the skin and the bridge of the nose. This subcutaneous tunnel is continued well up to, and upon, the bony bridge (see Fig. 7). The projecting bony parts are then depressed, to any desired degree and extent, by a process to which I should like to call your special attention; for by its means the bony bridge of the nose can be fractured without leaving in the skin over the bridge any sign of injury except two or three minute punctures. Two little instruments (A and B, Fig. 8), besides a mallet, are necessary for this operation, each instrument being about two or three inches long. Instrument A has a flattened extremity at one end and a handle at the other. On one side of the flattened extremity the surface is roughened like a coarse file, and on the other side is a minute depression which receives the point of instrument B. Instrument B closely resembles a very sharp-pointed lead pencil.

Instrument A is inserted into the incision, just be-

low the point of the nose, and is then pushed upwards along the subcutaneous tunnel already spoken of, until its roughened end is made to rest over the projecting part of the bony bridge which it is desired to fracture (as in Fig. 8). The point of the instrument B is then gently inserted through the skin into the little hole already referred to on the back of the flattened extremity of the instrument A. The two instruments, being then in the position shown in Fig. 8, are rigidly held, a few taps of the mallet on the end of the instrument B being sufficient to cause the fracture and depression desired at any point in the bony bridge. It may, in certain cases, be necessary to fracture the bone over a larger area. This of course can be easily accomplished by the same method.

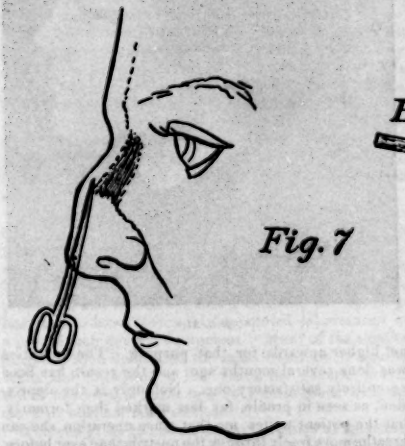


Fig. 7

Showing the method by which the subcutaneous tunnel is made with the scissors.

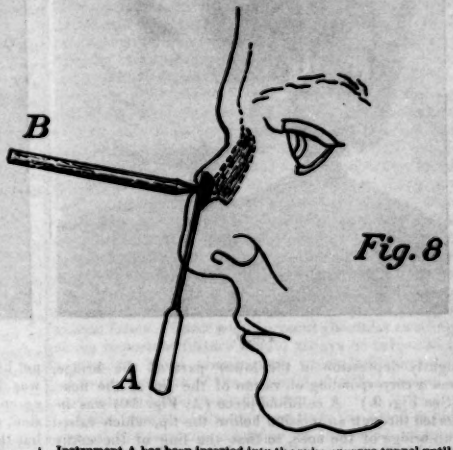


Fig. 8

Instrument A has been inserted into the subcutaneous tunnel until its roughened extremity rests upon the projecting bone. The point of Instrument B, having punctured the skin, is made to rest in the little depression on the back of instrument A.

After the operation has been completed there remain on the bridge of the nose where the bone has been fractured only a few minute punctures, which eventually cicatrize and are not noticed. This method of fracturing the bony bridge of the nose is of course only applicable to cases where there is undue prominence confined to a limited area on the bridge, and is not to be used in cases where there is deviation to one side or the other of the entire bony framework of the nose.

The method of tunnelling under the skin by means of scissors is one which I devised some years ago for other purposes than that mentioned here, and which I have found most useful in many cases.

SADDLE-BACK NOSE.

Another kind of deformed nose is what is called "Depressed or Saddle-Back Nose." This may be due to injury or disease, and the operation selected for its relief naturally varies with the cause or the special deformity in each case.

One case of this kind, already reported at length,[1] and simply referred to here, was a young girl of sixteen, who, as a result of inherited disease, had a saddle-back nose of such an extreme degree that the bridge of the nose was sunken to nearly the level of the cheeks, and was covered with a dense scar. The end of the nose was tipped up and the nostrils looked forwards. On account of her deformity she could get no employment. In this case, for certain reasons too many to be mentioned here, I thought it best to dissect off the scar over the depressed bridge, and, after freeing the tip and nostrils by a horizontal cut directly backwards through the lower part of the nose, I depressed them downwards into place, and then covered the gaping wound and the raw surface left by the removal of the scar with a flap from the left forearm. The result was satisfactory; the flap grew in place and covered both raw surface and gap. The tip of the nose faced forwards instead of upwards, and the nostrils faced downwards instead of forwards.

In another case, a young woman of twenty, with depressed nose from inherited disease, I inserted a platinum plate, which lifted up the bridge and gave perfect satisfaction until one day, many months after the operation, she was in sport peeping through a keyhole, when another girl gave her head a push, driving it against the door so violently that the end of the plate came out. This was of course followed by suppuration which necessitated the removal of the plate. In spite of this, however, the collapse of the nose was apparently not so marked as before the operation, and the patient declared that she thought the nose was firmer and that there was more bone in the bridge than before the plate was inserted. I did another operation on this nose, trimming a little here and there, and finally inserting a small bit of bone (from which the animal matter had been removed) which bone seemed to elevate the bridge somewhat, and which to this day — the operation was done three or four months ago — has given no trouble.

[1] See Boston Medical and Surgical Journal, June 28, 1888.

A young woman of twenty was referred to me some time ago by Dr. Mahoney, of Medford. Two years previously she had a fall upon the ice, which had apparently caused a permanent depression of the cartilaginous bridge of the nose, giving rise to very unsightly depression in the lower part of the bridge, and a corresponding elevation of the tip of the nose. (See Fig. 9.) A celluloid piece (A, Fig. 10) was inserted through an incision below the tip, which raised the bridge of the nose, so that the line of the entire bridge was nearly a straight one, and the patient was very well satisfied. The appearance of the nose after operation is well shown in Fig. 11.

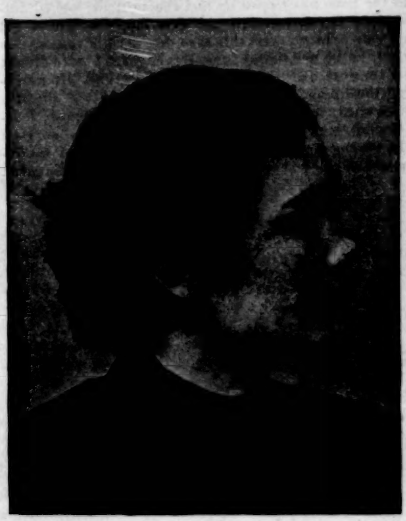
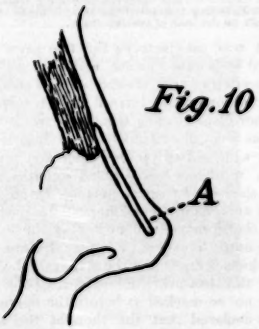


FIG. 9.



Showing where the piece of celluloid should rest in order to restore the lower part of the bridge.

The photographs from which Figs. 9 and 11 were taken are now in my possession.

In another case, a young lady, referred to me by Dr. E. H. Bradford, where there was a depression of the entire bridge, but especially of its upper part, I inserted a piece of celluloid high up on the bridge under the skin, having extended my subcutaneous tunnel higher upwards for that purpose. The operation was done several months ago, and the result has been an entirely satisfactory one. Not only is the depression, as seen in profile, far less marked than formerly, but the patient writes me that since operation she can breathe more freely through the nostrils than ever before.

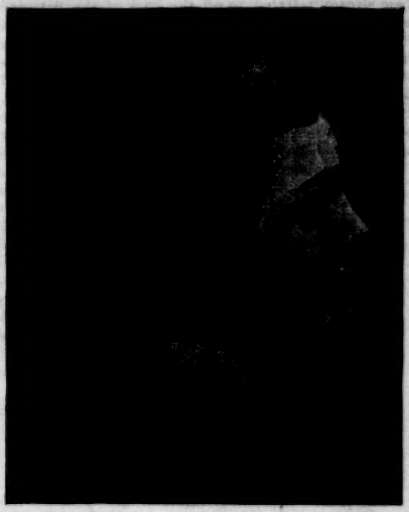


FIG. 11.

DEPRESSION OF LOWER HALF OF NOSE.

Occasionally one meets with cases where both the cartilaginous bridge and also the tip of the nose are collapsed. In such cases operative procedures are of no great avail; for unless some pretty extensive artificial framework is inserted under the skin there is nothing to support the parts. In one case of this kind where the tip of the nose and the cartilaginous bridge were greatly depressed as a result of disease, and the columna of the nose (that is, the narrow isthmus in the median line which connects the base of the nose with the tip) was wanting, I was able to supply a new columna from the skin of the arm, thus giving the man a somewhat more sightly organ, but I could not raise the tip and keep it in position.

The plan has been advocated, and put into operation in a few cases, of inserting a large artificial framework to overcome a collapsed condition of the nose. Judging from the reported cases I have seen, the good results have not been sufficiently lasting to lead us to hope much from the operation, for the apparatus, which it must be extremely difficult to cover up completely in the tissues, probably acts as a constant irritant, causing chronic suppuration and necrosis, necessitating its ultimate removal.

In conclusion I would say that, while many cases of deformed nose are so extreme that nothing can be done for them in the way of operation, there are many others in which a distinct *improvement* may be brought about, which, though not always entirely satisfactory to the surgeon, is almost invariably appreciated by the grateful patient.

ON THE VALUE OF LABORATORY RESEARCH TO THE CLINICIAN.*

BY HERBERT C. EMERSON, M.D., SPRINGFIELD, MASS.,
Pathologist of the Springfield Hospital, Springfield, and of the Dickinson Hospital, Northampton, Mass.

It is my purpose to call your attention to some of the methods of laboratory study of medical and surgical cases, and to emphasize the clinical advantages of general pathological work.

It is but a very few years ago that the busy general practitioner gave absolutely no attention to bacteriology, and almost none to pathological work. Save for an occasional examination of a tumor, physicians, as a rule, had no direct dealings with a pathologist. This is not to be wondered at, as laboratories were to be found only in connection with medical schools, the great hospitals themselves referring such pathological examinations as were important to the instructors in these schools.

Fifteen years ago, however, the discoveries in bacteriology gave an impetus to laboratory work which has steadily increased in power and scope and clinical usefulness. Continued examination and investigation led to new facts as to the cause and nature of morbid processes, and it soon became a necessity for the large hospitals to have thoroughly appointed laboratories as a part of their general equipment. Many of the smaller hospitals soon demanded the same outfit on a smaller scale, and so, within a few years, the general practitioner has been brought into very close touch with the work of hospital laboratories.

The one great end of all general practice of medicine, higher and broader than all others, is to relieve the suffering of humanity; and this is done, not in the laboratory, but by the physician, whenever and wherever opportunity presents itself. But as a means to this end, to enable the physician to make the correct diagnosis, to choose the successful remedy to relieve this suffering, the knowledge and assistance that laboratory investigation and research furnish is one of the dominant factors in successful scientific medicine today.

The most complete and painstaking clinical examination often fails to give us the definite information we ask, leaving questions like the following still in doubt:

Is this typhoid or malarial fever?

Has this patient a pelvic abscess, or chronic inflammation without pus?

Is this tonsilitis or diphtheria?

Answers to questions of this nature are in many cases determined by methods of study available only through laboratory investigation, which can be carried out only in pathological and bacteriological laboratories. This work really constitutes a distinct department of clinical pathology and bacteriology, and the catalogues of medical schools present courses of this character, both to graduates and undergraduates.

* Read at the meeting of the Hampden District Medical Society, Springfield, Mass., April 19, 1898.

Permit me to quote one sentence from a recent address[1] by one of the foremost clinicians of our day, Dr. F. C. Shattuck, of Boston. "The day is not far distant when every large hospital must have its pathological laboratory, as much as its operating room, with a trained and well-paid head, busied as much with the solution of problems arising in the living, as with the determination of the cause of death."

In presenting this subject to you in the way in which I am about to do, I make no pretense of complete and exhaustive treatment of the subjects as they are taken up, but I do aim to place before you some of the methods that are available to-day in our study of disease.

Blood. One of the most recent, as well as one of the most interesting side-lights of medical knowledge has been developed through the study and examination of the blood.[2] Although an immense amount of work has been done along this line, it is only comparatively recently that such examinations have become common and essential to the diagnosis of various conditions. Not merely the estimation of the number of the red and white corpuscles, but the individual characteristics of these cells must be determined — their size, shape, staining capacity and structural composition.

The study of the numerous varieties of white blood-corpuscles, or leucocytes, has given rise to many new diagnostic factors in many diseases, while our more exact knowledge of the different conditions that the red cells exhibit, is of great value, especially in the so-called blood diseases. Doubtful anemias and the degree of anemia are quickly determined by a study of the red cells; and the more or less severe secondary anemias at once differentiated from the primary or pernicious forms. Cases which present glandular swellings as the important feature should always be subjected to a complete blood examination, which will definitely settle the question of the presence of either variety of leukemia and Hodgkin's disease.

Aside from the help obtained from the blood in this class of diseases, the condition of the blood in many other diseases has been determined, and affords valuable data for making a differential diagnosis. This assistance is gained through the knowledge of the number of leucocytes present, an increase being constantly present in many diseases. This increase is called leucocytosis, and must consist of an increase in the adult form of white cells, or the polymorphonuclear variety. The normal number of leucocytes in adult blood is about 7,500 cells to the c. mm., and while they are increased in various physiological conditions, we are interested chiefly in the increase in pathological processes. For example: the white cells are largely increased in scarlet fever, and are usually normal in measles and German measles. They are increased in pneumonia, and normal in typhoid fever. Many cases of meningitis present the same symptoms as typhoid fever, but the presence of the leucocytosis at once excludes the consideration of typhoid. Uncomplicated tuberculosis in all its forms presents an approximately normal count of the white cells, and if a meningitis is present its non-tubercular character would be at once diagnosticated by an examination of the blood.

This increase in the white cells is also always present in septic cases generally, and knowledge of this is of great practical benefit where deep-seated suppuration is going on, and the question is, Is pus present or not? Let me illustrate the value of this method of diagnosis

by citing the following two cases which have lately been observed at the Springfield Hospital, in the service of Dr. R. H. Seelye:

CASE I. P. H., thirty-three years old; bar-tender; was operated on December 1st, for appendicitis; large abscess was found and the wound drained. Blood-count before operation showed 14,000 white cells. Patient did well, but on December 6th, 7th and 8th the temperature rose, and patient complained of some pain. It was thought that there might be a pocket of pus below, and the advisability of opening up the wound was discussed. The blood-count, however, on each of these three days, showed a practically normal count of 8,000 white cells, and no operation was done. Under the free use of salines the temperature came down to normal, and convalescence has been uninterrupted.

CASE II. F. N., thirty-one years of age, housewife. Entered the hospital with the diagnosis of pus tubes, which the symptoms and physical signs seemed to bear out clearly. The blood showed but 6,000 white cells. At the operation no abscess or pus whatever was found, but large, thickened tubes and ovarian hematocele on either side.

Examination of the blood for micro-organisms gives positive results in some cases, and it is probable that this line of work will receive more attention in the future; but in all cases in which we suspect malarial infection, search should be made in the blood for Laveran's organism, the plasmodium malariæ, and if carefully sought after may be often demonstrated, and a doubtful diagnosis made positive. Thayer,[3] whose brilliant and scientific study of malarial conditions renders his opinion invaluable, says: "The discovery of the parasites in the blood is the only diagnostic sign of malarial infection."

Typhoid Fever. The present laboratory methods of diagnosticating typhoid fever deserve a moment of special consideration. Ever since Eberth's[4] discovery of this bacillus as the true causative agent of typhoid fever, its identification has been a matter of considerable difficulty, and never of practical application. The difficulty lies in the isolation of the organism, owing to the very close resemblance it and its cultures have to the cultures of the bacillus coli communis, which is universally found in the intestine. Several new methods[5] for the cultivation of this organism and its differentiation from the colon bacillus have lately been tried, and with success, and it is now possible and practicable to make a diagnosis of this disease by isolating this specific organism from the feces, usually inside of forty-eight hours. Cultures may also be obtained from the urine[6] of the patient, and the bacilli may persist for a long period of time, — a fact of much practical importance in convalescent cases.[7]

Another most valuable laboratory means of diagnosis of this disease consists in the Widal reaction,[8] or serum test. The bacilli of typhoid fever are most actively motile organisms, and the serum reaction consists in the total arrest of their movements and their clumping together, when brought into direct contact with the blood or serum of a patient having typhoid fever, — the admixture being composed of one part of the serum, or watery solution of the blood, and 10 to 20 parts of the fresh culture of the bacilli in bouillon. This cessation of movement and agglutination is generally complete in from fifteen to twenty minutes, but it may require an hour or even longer. The use of this test is especially valuable in those doubtful cases of typhoid resembling grippe, meningitis, appendicitis, malarial fever and certain pulmonary affections. This reaction cannot generally be seen till at least the fourth day of the disease, and the fact that it may be observed for a varying number of weeks after recovery has served to somewhat discredit its reliability as a diagnostic factor. But in a given case of suspected typhoid, a positive reaction is a most valuable diagnostic sign, and the fact that it is constantly present in typhoid and absent in other diseases adds great weight to its value.

In a recent article in the *New York Medical Journal*,[9] 4,879 cases of typhoid taken from literature were reported, in which this reaction was tested, and positive results were obtained in 4,781 cases, or 97.9 per cent.

Diphtheria. In 1883 and 1884 the micro-organism known as the Klebs Löffler bacillus[10] was demonstrated to be the infective agent in diphtheria, and the experience of the years since then has not served to throw doubt on the accuracy of this discovery. The bacilli are easily identified through their morphology and staining properties, when examined from a sixteen to twenty-four hours' growth on blood serum. The cultures are obtained by rubbing sterilized swabs in the pharynx and then over the surface of the media.

It is generally recognized now that the diphtheritic bacilli may cause a very mild morbid process in the throat, as well as the extensive severe lesions. The nature of the disease in this last class is easily recognized, but it is absolutely impossible, in a large number of sore throats presented for treatment, to decide upon the character of the process, without a bacteriological examination. The pyogenic cocci, staphylococci and streptococci may give rise to exactly similar local conditions as the bacilli of diphtheria, and cases doubtful in character should always receive the benefit of this decisive test. The greatest danger of infection from this disease comes through the unknown exposure to the mild, unrecognized cases of true diphtheria. While I never would put off using the antitoxin in any urgent case I suspected to be diphtheria, until a bacteriological examination could be made, I consider this means of diagnosis most valuable in indicating the use of antitoxin in many cases in which it would otherwise not be thought of.

It is in daily evidence that the bacilli remain in the throat for a varying length of time after all symptoms of diphtheria have disappeared, and the throat is perfectly clean. Such cases should be considered, and are, sources of danger and further infection, as the bacilli persisting in the throat for three weeks after the disappearance of all symptoms[11] have been proved to be as virulent as at the height of the disease; and until the throat of a patient that has had diphtheria is proved to be bacteriologically free from the bacilli, such a person should not be allowed to go and come in society, and be a source of concealed danger.

Sputum. The examination of the sputum of patients suspected to be tubercular has long been a routine practice with many men; but I wish to emphasize the importance of this procedure, particularly in cases in which the slightest suspicion is aroused, and as early in the case as possible.

A young man of fairly good health came to me last summer, with the history of coughing up a very small quantity of blood on the day before, and again on the morning of this visit. He brought the specimen to show me, but said he did not think much about it, as

he had always had catarrh. The specimen consisted of 20 c. c. of bright frothy blood, in which I found fairly numerous tubercle bacilli. The physical signs were almost nothing, and yet the establishment of the diagnosis at this early stage of the process was most opportune for the patient.

The very early diagnosis of tuberculosis means an immense increase in the chances for arrest of the process and healing of the wound, and the sputum should be examined as early as it is possible to secure it.

The bacteriological examination of all fluids and exudations in the body, occurring in all sorts of pathological conditions, gives us new insight into the etiology of morbid processes, and often affords us help when it is least expected.

The detection of the gonococcus, if present, in the discharge from a doubtful urethritis, in many cases of vaginal discharge, in purulent conjunctivitis in infants and adults as well, is of the greatest importance to the physician and patient, and may further serve to suggest the preferable treatment.[12] The bacillus of diphtheria does not confine its visitations to the throat and nose, but may also be found in pus from the eye, ear and vagina.

Examination of the urine and feces will frequently give results of positive value for diagnosis in cases otherwise obscure — tubercle bacilli, for instance, may be often demonstrated in these excretions in doubtful intestinal and genito-urinary disorders.

In cases of meningitis it is now considered practicable for purposes of diagnosis to withdraw some of the cerebro-spinal fluid by lumbar puncture.[13] In this fluid tubercle bacilli may be demonstrated, or in the epidemic cerebro-spinal variety the specific organism, a diplococcus, may be easily found.

Microscopical examinations of new growths constitute a large part of a pathologist's work, and yet in this field alone there is room for a great deal more study and investigation of value to both patient and surgeon. Routine examination of all tumors, large and small, is a practice not at all common, except possibly in the medical centres; yet without such routine practice most valuable information of early malignancy must occasionally escape the surgeon's notice. I have in mind two cases of aural polypi, in which nothing unusual was suspected at time of operation, yet the malignancy of the one and the tubercular character of the other established at once the real cause of symptoms that shortly appeared.

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A DEPARTMENT for the treatment of hydrophobia by Pasteur's method has been opened at the Berlin Institute for Infectious Diseases.

Clinical Department.

LOCAL MUSCULAR WEAKNESS AS A CAUSE OF JOINT IRRITATION.[1]

BY ROBERT W. LOVETT, M.D., BOSTON.

IN formulating what must be common experience to you all, I am anxious to insist upon a factor which has not yet found its way into literature to any extent, and which seems to me to play an important part in joint affections, especially in the late history of joint injuries and inflammations.

Joints must depend for their proper mechanical use not only upon the well-being of cartilage, synovial membrane, and ligaments, but also upon the tone and strength of the muscles controlling them. Strong muscles protect joints and render them less vulnerable, weak muscles deprive the joints of their normal support, increase the liability to injury and throw an undue proportion of work upon the ligaments and joint structures. I beg your consideration of some cases illustrating these points:

CASE I. A case of synovitis apparently due to muscular weakness. A healthy young girl, sixteen years old, was referred to me in November, 1897, by Dr. W. L. Richardson. Six years ago she had wrenched her right knee while crossing the ocean and the knee was sore after it for a long time. She could walk upon it and was never confined to bed. It got better, although it did not entirely recover, and a year later she wrenched it again. Three years ago she sprained it so badly that she was in bed with it; slight sprains have been occurring ever since and have become more frequent during the last year. Two years ago she sprained the other knee and has had some slight sprains on that side which have also increased in frequency, but the right knee continued the worst and was more frequently injured. For the last few months pain has been present in both knees most of the time, but this pain has never been severe enough to suggest a dislocation of the patella or of the semilunar cartilages. It was aggravated by standing or walking and the patient was unable to walk one-half mile without severe pain. There is no rheumatism in the family and no personal history of any.

The girl was well developed, tall but slender; she walked with an unsteady swaying gait evidently due to imperfect flexion of the knees. There was no flat-foot or marked pronation of the foot, motion was perfect and there was no grating, the patellar reflexes were normal and there were no symptoms of any organic nervous disease. On examination the small size of the thighs was the striking feature, the calves were better by comparison, but were poorly developed. There was a moderate effusion in the right knee-joint with some thickening of the synovial membrane and a little tenderness. There was a slight effusion in the left knee-joint. It was obviously for these reasons not a purely hysterical affection, and I made the diagnosis of double synovitis due to constant traumatisms of the joints on account of imperfect muscular support. As the knee-joints when seen were obviously in a condition of subacute inflammation, it seemed to me that fixation was first needed to cure this irritation; the treatment therefore consisted of fixation by a ham-splint, with compression to the right knee-

[1] Read by title before the American Orthopædic Association, Boston, May 17, 1898.

joint to prevent motion and cause the absorption of the fluid. Little or no walking was permitted, and douching with hot and cold water was begun in a few days; daily massage was commenced in about a week. In three weeks the effusion had disappeared in the worst knee and motion was gradually allowed by removing the splint for an increasing time each day. The muscles improved rapidly in firmness and size and the pain disappeared.

In April, 1898, the patient reported that she had been apparently well for some weeks. She has had no pain in the knees, the muscles are firm and of average size, she can walk several miles without discomfort, and the contour of the legs has wholly changed. Whether the muscular disability was due originally to sprains or was the cause of them cannot be definitely determined. The history of the case led me to suspect that the muscular disability was primary, permitting the various sprains rather than resulting from them; certainly in November, when she came under my care the muscular disability was quite enough to be the cause of her symptoms.

CASE II. A healthy young man, twenty-one years old, well developed but decidedly neurotic, fell in January, 1897, while skating and struck both knees; they were lame for some time, but apparently recovered. In April, 1897, his left knee began to be painful. May 17, 1897, he wrenched his left knee while playing ball by swinging the bat forcibly while his knee was bent. I saw him eight days later, he had had no treatment previous to seeing me beyond wearing an elastic knee cap. He limped badly and suffered much discomfort. At that time there was slight synovial effusion and tenderness over the patella tendon; there was also some bulging at the sides of the patella tendon. He could not fully extend the leg by active effort when sitting without extreme pain when a certain point was reached, although passively it was not painful. The atrophy of the left thigh was very marked, especially over the vastus internus. I made the diagnosis of slight synovitis of the knee-joint with probably bursitis of the deep pretibial bursa. A heavy flannel bandage was applied, the knee improved and later massage three times a week was given. In June he went to his home, in a western city, nearly well and was placed under the care of a surgeon there. He did well there, but a slight sprain brought back the symptoms in the left knee. In September, 1897, eight months after the original injury, he came to Boston to be again under my care. There was no longer synovial effusion, but much pain in active extension of the leg when a certain point was reached. There were no signs of present inflammation in the knee or bursa. After a short period of fixation, frequent massage to the leg was begun on the supposition that the muscular weakness was at least a very large factor in the disability. At this time he was conscious of numberless slight sprains to the joint, the result of unguarded motion. Gradually the daily accidents which caused pain diminished, and he could actively straighten the leg without much discomfort. Active exercises with weight and pulley were begun to develop the extensors and adductors of the thigh, and just as the muscles developed the pain diminished; he is now practically well and the leg is nearly as large as the other. The muscles are firm, but there is still slight grating of the joint. He can walk, ride a bicycle, skate and ride horseback without discomfort.

Here the condition seemed to be a muscular weakness the outcome of an accident, outlasting the inflammation by many months and yielding only to measures directed to the development of the muscles.

CASE III. A boy, fourteen years old, of poor general muscular development, was brought to me in October, 1897, for disability in the left knee which caused a limp. He had always had a click in the knee in full extension, but three years ago he had wrenched the knee and it had been the source of pain and discomfort ever since. There had been no serious sprain at any time. On inspection the atrophy of the left thigh was very noticeable, the muscles were flabby and an inch less in circumference than those on the other side; the calf muscles, however, were the same on both sides. There was some synovial effusion, slight thickening of the synovial membrane, but no marked heat or tenderness.

When the boy extended his leg, just before full extension was reached, a click was felt, and the tibia was felt to rotate outward with a jump. This click was painful. An x-ray photograph showed no abnormality. This click seemed to be an exaggeration of the normal outward rotation which should occur as the joint locks in full extension. It seemed to me that the muscular weakness might be a factor in exaggerating this although the click was so marked that some congenital anomaly, probably in the semilunar cartilages, must have existed independently of any muscular weakness. The situation was explained to the parents who proved willing to act on the supposition that muscular weakness was the chief cause of pain and discomfort. The leg was first fixed and the synovitis cured and then massage and exercise given three times a week. The muscles are now nearly alike on both sides, all pain and discomfort have been absent for three months. The click is still present to a slight degree, but is not painful and seems only a very small part of what it was originally. Here was a joint apparently imperfect from the beginning, kept in a state of irritation by muscular weakness, and the congenital disability which, with proper muscular support, is not a source of trouble, became a troublesome and painful factor when the muscles were weak.

Here, then, were three cases which suggest the relation of muscular weakness to joint pain as in some instances that of cause and effect. They all show some points in common, a slight injury followed by complete or partial recovery, certain symptoms recurring after other slight injuries or spontaneously and then a gradual increase of these up to a point where surgical advice becomes necessary. The histories of all these cases are long, they stretch over months and the progress is discouraging to every one concerned.

That muscular atrophy occurs at once in connection with all joint inflammation is well established.[1] It seems from the history of these cases as if the inflammation may get well or nearly well and leave the muscular atrophy. Later the poorly supported joint may become injured again and again as the result of trifling accidents, or the continued lack of proper support, without the intervention of accidents, may cause the recurrence of joint irritability of a more or less severe type. Consequently, in a joint which is the source of trouble months after accident, when there are no signs of extensive chronic joint disease, an investigation of the muscular condition becomes of value.

[1] Valtat: L'atrophie musculaire dan les mal. artic., Paris.

If there is primary chronic joint disease or inflammation, the muscles will of course be atrophied, but it must be borne in mind that what resembles chronic joint inflammation very closely may apparently result from muscular atrophy as well. This calls attention to the importance of limiting so far as lies in the surgeon's power the muscular weakness which occurs necessarily in connection with joint inflammations. If this is not done, the muscular weakness alone may become a source of joint irritability. It enforces the importance of determining when the joint inflammation proper has ended in order to begin upon massage and strengthening exercises. Fixation and bandaging continued beyond the time of necessity thus become not only unnecessary but harmful in that they promote and prolong local muscular weakness from disuse. At the same time imperfect treatment which fails to control the inflamed joint and to quiet the inflammation promotes muscular atrophy by aggravating the joint inflammation. If any joint injury is severe enough to require fixation, this fixation should be complete enough to be efficient while it lasts and should be discontinued as soon as the inflammation is over; if the joint injury is not severe enough to require fixation massage should find an early place in the treatment. In joint injuries, half-way measures have very little to commend them and are responsible for many cases of local muscular atrophy lasting indefinitely.

I have purposely left out the consideration of neurasthenic joints and joints affected by chronic rheumatic arthritis in this connection. It seemed simpler to consider first simple inflammatory cases as demonstrating the relation of muscular atrophy to joint irritation. But in these cases the relation is of even greater importance than in such cases as have been described above.

Reports of Societies.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

THE TWENTIETH ANNUAL CONGRESS HELD IN BROOKLYN, N. Y., IN THE HALL OF THE LONG ISLAND HISTORICAL SOCIETY.

(Concluded from No. 10, p. 250.)

SECOND DAY, TUESDAY, MAY 17TH.

DR. S. W. LANGMAID, of Boston, read a paper on

THE HOARSENESS OF SINGERS.

This is a disease of occupation in the same sense as writer's cramp, housemaid's knee, etc. It has peculiar characteristics which differentiate it from the ordinary hoarseness caused by talking. In order to properly understand the condition requires the widest knowledge of the whole region of the throat as well as of general pathology. The treatment requires less skill than the proper diagnosis and prognosis of the affection.

The symptoms are swelling of the nasal mucous membrane, enlarged turbinates and congested larynx. Occasionally there is absence of catarrhal affection. There is disability resulting from impaired muscular power of the glottis. The acute catarrhal condition may be superimposed upon long existing infection of the cavity by catarrh of the nose. Neuroses, anemia, constitutional defects, rheumatism, atmospheric conditions, etc., are predisposing factors. Weakness of the intrinsic muscles — the tensors, the adductors and the sphincters — always exists. The bending inwards of one or both cords, the divalgence of the posterior portion of the cord, and what is more constant, deflection of one or both cords, are conditions often noted. First remove inflammatory conditions, reduce swellings and remove stenosis, if it exists. Remove any deflected septum or septal spur that may be present. The glands in the posterior laryngeal space often interfere with singing in young persons. Inhalations of steam are beneficial for a dry and painful state of the throat. Strychnine may be employed in case of muscular weakness. Complete rest for the voice is most desirable. Attention should be called to the improper use of the voice in very young singers.

DR. J. EDWIN RHODES, of Chicago, read a paper on

SPASM OF THE TENSORS OF THE VOCAL CORDS.

Dysphonia spastica is a very rare condition. Dr. Mackenzie was the first to describe it, and he had seen only thirteen cases. The causes of the affection are an abnormal use of the voice and possibly a neurotic condition not yet understood. It is present in incipient multiple neurosis and is usually connected with some nasal affection. The symptoms appear on attempted pronation. The voice jerks when an attempt to pass from a low note to a high one is made, and there is difficulty in getting started. There is involuntary breaking in the speech. One of the peculiarities of the disease is that cocaine used in the nose relieves the spasm for some time. In two cases that have come under my observation, improper use of the voice was an element in the causation. In another instance there was a nervous strain present for several years. Disturbances of reflexes and hysteria are also elements in causation. The prognosis is very unfavorable. Local applications, strychnia, sprays, etc., are of no value. The best treatment is long rest for the voice, general tonics, such as iron, arsenic, iodide of potassium, electrical treatment, etc., which may give some relief. Astringent applications are occasionally of some value. The use of cocaine cannot be recommended. We cannot hope for a cure in any fixed line of treatment.

DR. SIMPSON spoke of the importance of this affection to those who gained a livelihood by the use of the voice. The fundamental cause of a singer's hoarseness is found in the fact that the human larynx was never intended for constant use in singing. Overuse of the voice is the primary cause of this condition. In regard to the proper time to begin the use of the voice, he said there was danger in beginning too soon and also in beginning at a too advanced age. Instances were cited illustrating the bad effects in both cases.

DR. MACKENZIE considered the unicoid or falsetto voice running up from a whisper to the falsetto, as he had been particularly successful in the treatment of these cases. He related the case of a boy of sixteen who had been troubled since puberty by his voice changing to falsetto. Examination revealed a nasal spur which caused difficulty in breathing, but this did not seem to account for the trouble. The larynx was pushed up one and one-half inches, and the muscles seemed to have contracted too much. By placing one finger over the Adam's apple and introducing the other into the throat the larynx was pushed into its proper place; then the boy was told to talk, which

he did as well as ever. Muscular training will probably be the treatment of the future.

DR. DELAVAN thought that anything that caused a relaxation of the system in general would also cause a relaxation of the vocal cords. Stammering is always worse when the patient is not feeling well. Cocaine should be strenuously avoided because of the alluring nature of the drug; it should be used only to carry a public speaker through in case of emergency.

DR. CLARENCE C. RICE thought that singers affected by changes in the vocal bands should go for treatment only to those who understood vocal phonation. The condition could often be cured by proper voice formation. In the strain of intrinsic vocal muscles where the vocal bands were not approximated as they should be, he had not seen inaction or weakness of the posterior arytenoidei muscles.

DR. F. W. HINKEL, of Buffalo, read the

REPORT OF A CASE OF LIPOMA OF THE LARYNX.

This patient, age fifty-five, was in excellent health in 1895. In 1883 she was conscious of a tumor at the back of her tongue and consulted Dr. Park who removed it. After some years there was a gradual return of the symptoms, and Dr. Park again removed a tumor smaller than the first. In 1894 another tumor was removed similar to the last. In 1895 the patient consulted me for a cough and difficulty in swallowing. She stated that her father had died of cancer of the face. From the left epiglottis a pinkish body projected, which was soft or doughy in consistency and varicosities existed at the root of the tongue. As there was some difficulty in drawing the loop through the snare, it was necessary to remove the growth in three pieces. It was dense and hard, and no bleeding accompanied the operation. Behind some fulness of the glottis remained. In 1898 she again consulted me for discomfort, and a tumor was found at the free edge of the epiglottis and bending towards the right. The left aryepiglottic fold was thickened. There was no involvement of the ventricular band. The growth had the appearance of a polyp. It was readily removed with forceps and scissors, and was found to be three-quarters of an inch in length. The epiglottis presented a curious appearance, the epiglottic fossa being filled with tissue similar to that just removed. The persistent recurrence of the tumors led to a microscopical examination. Dr. Wright, after making an examination, reported the case to be one of lipoma of the larynx.

DR. WRIGHT said that the first specimen was 45 millimetres long and 8 millimetres wide. In 1896 there had been but ten cases of lipoma reported.

DR. JOHN W. FARLOW, of Boston, said that a patient came to his office with a growth protruding between his lips. The tumor dropped two and one-half inches below the vocal cords, was pedunculated and protruded outside his lips. The growth was cut off with the galvano-cautery and proved to be a pure lipoma.

DR. WHITEHILL F. KINKEL read a paper reporting

A DEATH FOLLOWING IMMEDIATELY AN OPERATION FOR NASOPHARYNGEAL ADENOIDS UNDER CHLOROFORM ANESTHESIA, WITH REMARKS ON ANESTHETICS IN THIS OPERATION.

A boy, six years of age, never a mouth breather or snorer, complained of ear trouble and deafness. Examination revealed a moderate amount of lymphoid tissue in the vault of the pharynx. The attacks of deafness continued to recur, and when he was eight years old it was decided to operate. Chloroform was used, the mask being applied dry, and the chloroform being dropped on by an experienced anesthetist who was prepared for any emergency. The boy had a systolic murmur, which was probably not due to organic lesions.

Vomiting and spasm of the glottis occurred. Only one ounce of chloroform was used. The lymphoid tissue was found to be quite firm. Careful watch of the respiration and pulse was kept. A temporal pulse was observed. The operation was finished when, after about three minutes, respiration ceased suddenly. No pulse could be felt and there were no heart-sounds. Digitalis, strychnia and other drugs were given, and also hypodermics of ether, atropia and digitalis. Cold effusions were also tried. Artificial respiration was kept up for two hours without avail. No post-mortem was allowed. As the quantity of chloroform was so small, and there seemed to be no circulatory disturbance, the death seems to have been due to some nervous disturbance. Dr. T. Lauder Brunton considers neuroparalysis as the cause of death. The chloroform has a direct action on the respiratory centres.

In 1893 the medical press of Great Britain called attention to the great fatality attending adenoid operations. In 1896 Halloway tabulated 14 deaths under chloroform; of the 14 cases reported in 1895 that had occurred since 1892, 11 took place during operations upon nasal and naso-pharyngeal adenoids.

Of the 11 cases which Halloway reports, 6 occurred during the operation for adenoids alone, 3 during operation for adenoids and hypertrophied tonsil, and 2 for hypertrophied tonsil alone. In the last 2 cases death occurred before the operation was begun. In 4 cases death occurred before the operation; in 3 cases a few minutes after the operation was completed.

All the cases of death from chloroform anesthesia are not reported. In many cases enlargement of the thymus gland was observed. Brunton claims that spasm of the glottis, which occurs frequently in the administration of the anesthetic, is the cause of death, acting on the reflex inhibition.

In adenoid operations six deaths have been reported due to hemorrhage, and these were bleeders. We should avoid giving chloroform to patients of a lymphatic temperament. Ether should be used if a general anesthetic is required; or, if the operation is very short, we may use nitrous oxide gas.

We may note that statistics show an exceptionally high mortality from chloroform. Sufferers from adenoids belong to a constitutional type that are peculiarly susceptible to chloroform. The general use of chloroform in these cases is inadmissible.

DR. ARTHUR AMES BLISS, of Philadelphia, read a paper entitled

THE RECURRENCE OF ADENOIDS AFTER EXCISION.

Out of three cases where there had been recurrence, the operation had been done from the region of the vomer in two instances. To prevent the return of the tumors, the best method was complete and thorough removal. Their return is usually due to incomplete operations.

Dr. D. Bryson Delavan, of New York, read a paper entitled

PRESENT METHODS FOR THE OPERATIVE TREATMENT OF PHARYNGEAL ADENOIDS.

In the surgical treatment of these adenoids two points are of primary importance: thoroughness and humanity. Thoroughness means the complete removal of the condition as any tissue left behind is unhealthy. Half-way measures are useless in both adults and children. As to the humanitarian side, we should employ, as far as possible, those methods which produce the least pain, shock and injury. The statement that this operation is not painful is incorrect. All the patients questioned during a number of years had agreed in saying that the removal of the adenoid had been accompanied by sharp pain. Cocaine may be used as an anesthetic if the operator is very skilful and has a steady hand. Four classes of instruments are generally used: 1st, the curette; 2d, the forceps (Gotstein); 3d, adenotome with plain edges; 4th, the wire loop or snare. The finger-nail should also be mentioned in this connection. The sharp spoon should not be used as it may cause hemorrhage. The Gotstein knife is very popular. If a general anesthetic is required ether is probably the most satisfactory; nitrous oxide gas is generally too evanescent in effect.

Dr. J. W. Gleitsmann said that he had read a paper a few years ago in which he had stated that four per cent. of the operations were followed by recurrences. He had noted recurrences of the faucial tonsil, and others had had the same experience. As to the use of an anesthetic, he used ethyl bromide extensively in his office, but at the patient's home he always had a general anesthetic administered.

Dr. Casselberry, of Chicago, used ether exclusively where a long operation demanded a general anesthetic. Bromide of ethyl might be good in short operations. If the anesthetic be properly given on an empty stomach there would be little nausea.

Dr. Wagner had used bromothine frequently in adenoid operations and had never had a death. It was both quicker and safer in its action than chloroform. In operating for adenoids he used a hook with which he pulled the growth down, and then with a special set of instruments that he had made he dissected everything out. He had seen no recurrences following this method; there was no bleeding and no pain.

Dr. A. B. Thrasher, of Cincinnati, thought the fatalities from the use of chloroform due to the method of administering it. He had seen a number of deaths due to an inflamed condition produced by this drug. The head should be lower than the body. Marion Syms emphasized this point. This position prevents blood from getting into the larynx. A blood-clot in the larynx causing blood poisoning from carbon dioxide gas may cause death. Ether should not be used in young subjects, as the bronchial tubes are small and there is danger of catarrhal pneumonia. Children often die after two or three weeks from the effects of the ether. He had used ethyl bromide in twenty cases. He usually operated, however, in the primary stage of chloroform narcosis.

Dr. J. E. Logan, of Kansas City, never used anesthetics on adults, and so considered them only in their relation to children. He did not think chloroform so dangerous if properly used. We should look carefully for functional or heart troubles. He used forceps in adults nearly always; in children the curette with the finger-nail properly cleansed. He advised the use of the finger-nail in operating in the region of the Eustachian tube in order to avoid injury to these orifices.

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Dr. Swain advocated operating during the primary stage of chloroform anesthesia. He had had no bad effects from its use and he expected to continue using it.

Dr. Bryan, of Washington, while recognizing the importance of operating under full anesthesia, thought that the patient should not be so completely under the influence of the anesthetic that the reflexes would be abolished and he would be unable to expel foreign matter. He had used nitrous oxide gas for a number of years in older children. Though this gas was considered harmless, he had found six deaths from its improper administration. In operations upon the upper air passages he thought the patients were more likely to die from hemorrhage than from the effects of chloroform or ether. In his observation in adenoid cases he had often noted that obstruction came from the mechanical effect of the secretions. The removal of the adenoids and turbinates does away with many of the symptoms, and he had found where there was supposed to be a recurrence of the trouble, that the throat and pharynx were free, but there was present an acute rhinitis and an engorgement of the inferior turbinate. The speaker then cited a case to illustrate the point in question. As to instruments, he did not think that any one instrument would answer in all cases. He used the curette and the forceps. From casts made of children's throats a pattern of a curette was obtained from which he had had one made.

Dr. Rice said there might be other reasons why they did not breath well: small nostrils, infiltration as well as other conditions tend to prevent unimpeded respiration. A catarrhal bronchitis is set up, and in winter time it is usually several weeks before the child recovers. The speaker referred to a change in the contour of the superior maxilla as a result of the presence of the adenoids.

Dr. Hinkel said that de Roaldes had written him that he had used bromide of ethyl several hundred times with perfect satisfaction. In young children he preferred chloroform.

Dr. Delavan closed the discussion. During the first two years he used chloroform, and in operating upon over two hundred cases he had had two accidents, neither of them fatal. Unfavorable reports that came from abroad, together with these accidents, caused him to discontinue the use of chloroform. Ether was often not given properly, and produced a complete relaxation of the pharynx while only a partial relaxation was wanted. People in this country were more familiar with the administration of ether than with that of chloroform. Adults do not require a general anesthetic; the paper read referred only to children. In operating about the orifices of the Eustachian tubes the finger should be used, and that with great care. Any nasal obstruction may give rise to a failure of the adenoid operation. He did not think that ether had anything to do with the amount of hemorrhage present. Certain anomalies, such as stammering, had been removed after adenoid operations.

DR. J. C. MULHALL, of St. Louis, read a paper entitled

THE UPPER RESPIRATORY ORGANS AND THE GENERAL HEALTH.

The national triad of affection, are catarrh, dyspepsia, nervous prostration — all due to our bad habits of living. Diseases of the upper air passages may produce disturbances of the general health, and it is equally true that if the general health suffers there may result diseases of the upper air passages. He related the case of an elderly man who was plethoric from high living, champagne, etc.; his catarrhal condition was due to his general health; he needed dieting and exercise, but refused to take this treatment. After six months of spraying, burning and all manner of other things, at the hands of numerous physicians, he returned without any marked improvement. He then followed my advice, walking three miles a day and dieting, which treatment was followed by disappearance of all his symptoms. This case illustrates a very common condition and a common error in the treatment of diseases of the upper air tract.

A factor to be taken into consideration is that of auto-intoxication from the intestinal tract. The American people eat too much candy, hot bread and rolls, cereals and sugar, etc., thus laying up a large supply of fuel that is not worked off, and as a result become dyspeptic. The surgeon always has the intestinal tract cleared out before operating in order to prevent infection from within. It has been noted that a cut in the skin will heal more rapidly if the intestinal canal is cleaned out by a calomel purge. Opera singers are acquainted with the fact that careful dieting and an abundance of outdoor exercise are productive of better voices. Pugulists are frequently subject to pharyngeal catarrh produced by their wild habits of living; but as soon as they train for a fight these symptoms disappear.

In the purulent catarrh of adolescence, the patient must be taken away from the books and the piano and placed on iron, outdoor exercise and good food, etc., if we hope to make a cure. It is difficult to induce Americans to adopt proper habits; they seem to prefer the disease so long as it does not endanger life. If attention to the general health and simple cleanliness are neglected all other treatment is superfluous. Prophylaxis should begin in childhood. There should be as near an approach to outdoor life as possible. The head-covering should permit of free ventilation; the same should be true of foot-covering. But three meals a day should be eaten. Hot bread should be eschewed. Rubber shoes and mufflers should be done away with. Careful diet does as much for the outside skin as it does for the inside. Nasal affection cannot be properly treated until the ptomaines are swept from the system. The Salsberry method, consisting of beef diet, hot water and plenty of exercise is very beneficial in properly selected cases. Many affections of the upper air tract are tinctured by neurasthenia; here treatment should be directed to the nervous system. With all due modesty, I would say, "long live the general health; away with the spray."

DR. MAYER considered the paper a very valuable one, as it called attention to the general health which specialists were prone to lose sight of.

DR. DELAVAN thought that dietetics had much to do with the improvement of the last named cases.

DR. HENRY L. WAGNER, of San Francisco, read a paper entitled

NATURAL IMMUNITY (A BIOLOGICAL RESEARCH).

DR. J. H. BRYAN, of Washington, reported two cases illustrating

FURTHER RESULTS OF OPERATIVE TREATMENT OF FRONTAL SINUSITIS.

DR. J. W. FARLOW, of Boston, reported

A CASE OF DISEASE OF THE ACCESSORY SINUSES.

This case was of particular interest from the fact that it followed scarlet fever. There was a thickening of the superior maxilla and absence of discharge from the nose. The eye was pushed outwards, downwards and forwards, and there was possibly a secondary involvement of the antrum of Highmore.

DR. WAGNER referred to the use of hot air in those cases where the condition cannot be treated surgically.

DR. HENRY L. SWAIN, of New Haven, read a paper entitled

SOME OBSERVATIONS ON THE USE OF AQUEOUS EXTRACT OF SUPRARENAL GLANDS LOCALLY IN THE UPPER AIR PASSAGES.

His conclusions were as follows:

(1) We have in the aqueous extract of suprarenal glands, a powerful, local, naso-constrictor agent, and a contractor of erectile tissue, which it is safe to use in very considerable amounts without any dangerous or deleterious effects, locally, or to the general constitution of the individual.

(2) These local effects can be reproduced in the same individual apparently any number of times without entailing any vicious habits to either the tissue or the individual.

(3) The use of the extract seems rather to heighten the effects which may be expected from any given drug which may be used locally after it.

(4) In acute congestions it has its widest application and greatest opportunity for good, but in certain chronic conditions of the hay-fever type, where redundant tissue seems prone to develop, it can be relied upon as one of the most helpful adjuvants which we have at command.

(5) The only difficulty seems to be the producing it in quantities and preventing its decomposition on standing.

DR. CLARENCE C. RICE, of New York, read a paper on

ACUTE INFLAMMATORY CONDITIONS OF THE UPPER AIR PASSAGES ACCOMPANIED BY LARYNGEAL EDEMA.

The following papers were read by title: "Clinical illustrations of malignant growths of the epiglottis," by Dr. J. Solis Cohen, of Philadelphia; "The surgical treatment of lupus and tuberculosis of the larynx in connection with tracheotomy," by Dr. E. L. Shurley, of Detroit; "Foreign body in the larynx, and a modification of Kirstein's autoscope," by Dr. E. Fletcher Ingals, of Chicago; "Submucous operation on the nasal septum, with attempts at membrane grafting," by Dr. T. Emory DeBlois, of Boston; "Influence of lymphoid hypertrophy on epilepsy," by Dr. U. G. Hitchcock, of New York; "A case of nasal fibroma, supplementary report," by Dr. W. E. Casselberry, of Chicago; "Observations on the value of lactic acid as

a remedy for certain conditions of the upper respiratory tract," by Dr. Alexander W. MacCoy, of Philadelphia; "The uvula in its relations to various abnormal conditions," by Dr. G. B. Hope, of New York; "Thyrotomy for papilloma of the larynx," by Dr. T. Melville Hardie, of Chicago; "Sarcoma of the nasal septum," by Dr. J. Payson Clark, of Boston; "Some remarks on facts not found in text-books," by Dr. W. P. Porcher, of Charleston.

At the executive session, the following were elected to active fellowship: Dr. J. L. Goodale, of Boston, Mass., — thesis, "A contribution to the histo-pathology of acute tonsillitis"; Dr. D. Braden Kyle, of Philadelphia, — thesis, "The position of the orifice of the Eustachian tube and the possibility of catheterizing through the mouth"; Dr. G. Hudson Makuen, of Philadelphia, — thesis, "Artistic breathing."

Officers elected for the ensuing year: President, Dr. William E. Casselberry, of Chicago; First Vice-President, Dr. John W. Gleitsmann, of New York; Second Vice-President, Dr. F. Whitehill Hinkel, of Buffalo; Secretary and Treasurer, Dr. Henry L. Swain, of New Haven; Librarian, Dr. Jonathan Wright, of Brooklyn; Delegate to the Council, Dr. Thomas R. French, of Brooklyn; Representative to the Congress of Physicians and Surgeons, Dr. W. K. Simpson, of New York. Members of the Council, Dr. Thomas R. French, of Brooklyn; Dr. John O. Roe, of Rochester; Dr. W. H. Daly, of Pittsburg; Dr. Charles H. Knight, of New York.

Chicago was chosen as the next place of meeting, the time to be at the discretion of the Council.

Recent Literature.

The Purification of Public Water-Supplies. By John W. Hill, Consulting Engineer, etc. New York: D. Van Nostrand Co. London: E. & F. N. Spon. 1898.

The object of this very full and complete treatise, as stated by the author, is to present

(1) The fact and the causes of pollution of sources of public water-supply.

(2) The effect of such pollution upon the death-rates from typhoid fever in large cities.

(3) Examples of the reduction in typhoid mortality by the introduction of pure water, and by the filtration of polluted water.

The author very properly takes the position that the best test of the public water-supply is its effect upon the health of the community to which it is supplied, and for this reason a very considerable portion of the book is devoted to the subject of typhoid fever in its relation to public water-supplies.

In the Appendix several tables are presented giving the statistics of many cities, American and foreign, the figures presented being the population and the death-rates per 100,000 from typhoid fever for a series of years.

The book is well illustrated with cuts and diagrams illustrating the different methods of filtration, and will be found very useful as a work of reference, for water boards, engineers, health officials and all persons who are interested in the subject of pure water-supplies.

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THE GOULSTONIAN LECTURES ON THE PATHOLOGY OF THE KIDNEYS.

Some of the problems connected with the functions of the kidneys, both in a normal and pathological state, have been much elucidated — though not altogether cleared up — by the experiments of Dr. Rose Bradford as recorded in the Goulstonian lectures recently published in the *Lancet*.

It has, for instance, long been remarked that in chronic interstitial nephritis whose ultimate lesion is known as the small contracted kidney, polyuria is a common symptom, and the urine voided is of low specific gravity. In this disease there is gradual destruction of the parenchymatous or secreting elements of the kidney by a connective-tissue overgrowth and life is only maintained by the increased activity of such portions of the renal substance as still remain sound. Naturally all the urea and other urinary solids must pass out through this texturally healthy and functionally active part of the renal mechanism, but why the great excess of watery secretion? This has never been satisfactorily explained.

It is interesting to observe that a similar result was obtained by Dr. Bradford in his experiments of partial nephrectomy in dogs. Excision of a portion of one kidney is followed by a slight increase in the amount of urine, sometimes transient, in others more permanent in its duration, but unaccompanied by any permanently increased excretion of urea, or by any deterioration in the general health. The excision of portions of both kidneys is followed by a very great augmentation in the amount of urine; thus it may be trebled and even quadrupled in amount, and this increase is permanent. The excision of a portion of one kidney and the subsequent removal of the whole of the other also causes this extreme hydruria, and provided that at least one-third of the original total kidney weight is left, the mutilated animal will remain in fairly good health for prolonged periods, for example, eighteen months. Such an animal, however, is unable

to excrete a concentrated urine, and if very large amounts of nitrogenous foods are given, the urea formed is readily excreted, but only by means of a still further increase in the amount of urine. Such an animal, Dr. Bradford remarks, resembles a case of diabetes insipidus or contracted kidney, but the urine is not albuminous. The natural explanation of this would be that in interstitial nephritis there is always more or less accompanying alteration of the epithelium of the glomeruli, hence the albuminuria; that is, there is a mixed inflammation, a condition which did not exist in Dr. Bradford's mutilated animals. The cause of the increased excretion of urine when the amount of available kidney is thus reduced is by no means clear; Dr. Bradford declares that it has not in his observations been associated with any very great increase of blood pressure. Some physiologists have urged that the kidney not only excretes water but also that it reabsorbs water, and it may be that if the quantity of kidney tissue is diminished, the excretion may continue and the reabsorption may fail; this, however, does not seem to be the probable explanation.

Normally an animal, such as a dog, if it requires to excrete a large amount of urea can do so in two ways, either by increasing the percentage of urea in a given quantity of urine, or by increasing the total amount of urine. It would seem that after the partial nephrectomies, as well as in cases where large destruction of renal parenchyma is effected by disease, the process is likely to be the latter. Dr. Bradford noted that after partial nephrectomy there is a slight increase in the amount of urea in the blood, and it is possible that this may be the cause of the hydruria, and if so, there is a still greater resemblance between this experimental hydruria and that seen in renal cirrhosis, since the blood in this malady often contains a notable excess of urea. Some of Dr. Bradford's nephrectomized animals excreted three times as much urinary water with one-tenth of the original kidney weight as they did with intact kidneys. This shows the extreme facility with which small fragments of healthy kidney will excrete the urinary water. After excising portions of the kidneys, an increased excretion of urea sets in in from one to three days later than the increased excretion of water, so that the animals in which three-fourths of the total kidney weight has been removed present for the period of one to two days a condition of simple hydruria before the polyuria sets in. This polyuria is persistent, and being accompanied with great emaciation, it leads to death in periods varying from one to six weeks. In the cases where three-fourths or more of the total kidney weight had been removed, the polyuria was marked and persistent and invariably led to death; when, however, two-thirds of the total kidney weight had been removed, there was quite exceptionally a slight increase in the urea excretion accompanied by slight wasting, but this was never marked in amount or fatal in its course. All this is of interest in its application to renal cirrhosis, and it would appear that a very small difference in the amount of kidney substance will turn the scale from the condition of simple hydruria, which is compatible with good health for prolonged periods, to a condition of polyuria accompanied by great wasting and leading rapidly to death.

In our judgment, a principal point of interest in the physiology of the kidney as bearing on the pathology is the amount of kidney substance necessary in order for life to be maintained. This can be deduced from a comparison of the two series of Dr. Rose Bradford's experiments — the fatal one where three-quarters of total kidney weight had been removed, and the other, the non-fatal series where two-thirds had been excised and where life was maintained for an indefinite period in good health. The comparison of these two series shows that when the animal possesses some two grammes or more of kidney per kilo of body weight, life can be maintained in good health, but when the amount of kidney substance is less than two grammes per kilo, severe disturbances of nutrition set in and the animal dies. The normal amount of kidney in dogs is approximately some 6.7 grammes per kilo. As soon, then, as there is less than one-third of the normal quantity of kidney to do the work of that organ, the danger limit is reached and a very small amount of renal tissue will turn the scale.

The physician in active practice is continually encountering cases of renal cirrhosis which are nearing the danger line, where care and prudence will long avert a fatal issue, but where imprudence and excesses may precipitate all the evil consequences of failure of the renal function. Where the well-known symptoms of uremia are constantly present, he will realize that the danger limit is already past and the condition irremediable.

THE STUDY OF TROPICAL MEDICINE.

IN the first number of the *Journal of Tropical Medicine*, a new monthly published in London, devoted to medical, surgical and gynecological work in the tropics, and edited by James Cantlie, M.B., F.R.C.S., together with W. J. Simpson, M.D., M.R.C.P., appears the announcement that a school for the study of tropical diseases is to be established in London.

This school, which has been warmly and efficiently promoted by Mr. Chamberlain, the present British Minister for the Colonies, and initiated by a substantial gift of money by the Colonial Office, is to be attached to the Branch Seamen's Hospital at Greenwich, which is to be enlarged for the purpose. The school is to be under the direction of Dr. Patrick Manson, president of the Section on Tropical Diseases at the recent Edinburgh meeting of the British Medical Association, and an abundant supply of material for study is assured, as the cases treated at the hospital are natives of India, Africa, China, the West Indies, and other tropical countries, brought from the vessels lying at the London docks. The school will require a two months' course of demonstrations and clinical work,

and judging from the number of British medical men who proceed each year to the tropics, either in the service of the government, or as private practitioners, and who will doubtless be glad to avail themselves of this means of preparation for their chosen work, the number of students will probably be large.

The school ought to serve an excellent purpose in fitting men who intend to practise in the tropics for the treatment of the special class of diseases with which they will be called upon to deal, and enabling them to start with some knowledge of their work, and not, as heretofore, be obliged to depend entirely on the too often bitter teaching of experience.

If, as now seems probable, no inconsiderable number of the medical men of our own country are to be compelled to deal with tropical medicine and hygiene in connection with our new territorial acquisitions, there will be urgent need, at least, for the establishment of courses in tropical medicine in our more important medical schools, if not for the establishment of a special school for the study of tropical diseases. In the light of present conditions the work of the new school in London will be watched with interest in this country.

The city of London is peculiarly well fitted for the supply of clinical material to such a school, owing to the extent and cosmopolitan character of its commerce, which supplies its hospitals with cases of disease from a very large number of tropical lands. Whether any seaport in this country could supply an adequate amount of clinical material for a school devoted to tropical diseases is open to doubt, but it is nevertheless true that the study of tropical diseases in this country will demand increased attention, and measures should be taken as soon as possible to ascertain what can be done in this regard.

The establishment of the *Journal of Tropical Medicine*, the first publication in English devoted to tropical diseases, calls to mind the fact that already in Germany, France and Holland journals of a similar character are published.

MEDICAL NOTES.

Professor Koch in Italy. — Professor Koch is at present engaged in the study of malaria in the hospitals of Milan, and expects to make a special investigation of the subject in Italy.

A Dinner to Professor Virchow. — A dinner, at which Lord Lister will preside, will be given to Professor Virchow on October 5th, on the occasion of his visit to London, to deliver the second Huxley lecture.

Yellow Fever at Ponce. — The occurrence of several cases of yellow fever among the troops at Ponce, Porto Rico, has been announced. The diagnosis is based upon the results of an autopsy. So far this case has been the only fatal one. The army authorities are confident of keeping the disease under control.

Correction. — The title of the paper by Dr. F. B. Lund, in the last issue of the Journal, was by mistake made to read "A Report of Ten Operations for General Peritonitis with Two Recoveries." It should have read, "A Report of Ten Operations, etc., with Four Recoveries."

The Study of Decreased Natality. — Few subjects in anthropology have more practical bearing than that of the decadence of races. This comes most directly from a diminished birth-rate. It has been calculated according to service, that a minimum of four living children is required to each marriage under ordinary conditions, in order merely to prevent diminution. Decrease in natality, therefore, is an ominous outlook for a community.— *Science.*

BOSTON AND NEW ENGLAND.

A Vacant Instructorship. — The position of Instructor in Histology at the Harvard Medical School is vacant. The appointment is an annual one with a salary of four hundred dollars. The holder is expected to give twenty hours a week to the work of the Laboratory and to devote the remainder of the time to original investigation in Histology or Embryology under the supervision of the senior officers of the department. Applications should be addressed at once to Prof. Charles S. Minot, Harvard Medical School, Boston, Mass.

Arrival of the Hospital Ship "Relief." — The hospital ship *Relief* reached Boston early Tuesday morning, September 13th, from Montauk, with 250 sick soldiers. It had been expected that the greater part of these men would be Massachusetts troops. This was, however, not the case, but seven being Massachusetts Volunteers. Most of the men were of the regular army. Very few were dangerously ill, though all showed the effects of their exposure and hardships. Those most ill were sent to the City Hospital, and the others distributed to the Massachusetts General, the Homeopathic, the Marine Hospital and the Long Island Hospital. At the latter institution excellent accommodations are provided in one wing of the large hospital building; several of the soldiers expressed pleasure at no longer being obliged to sleep in tents. The *Relief* sailed soon after discharging the soldiers.

NEW YORK.

A Munificent Gift. — It is now announced that the gift to the new medical department of Cornell University, in New York, of Col. Oliver H. Payne, brother-in-law of Ex-Secretary of the Navy Wm. C. Whitney, which was some time ago reported to be $500,000, in reality amounts to the munificent foundation of over $1,500,000, and that the new building which it provides for will be begun within the next thirty days. It is stated that several years ago Colonel Payne formed the determination of endowing the medical department of the University of the City of New York through his esteem for the late Dr. Alfred L. Loomis, at that time the foremost professor of that

school, for whom he entertained a warm feeling of personal gratitude on account of his recovery from a serious illness under the latter's treatment. In 1892 he made a donation of $150,000 to the Loomis Laboratory connected with the University, by means of which that institution was entirely freed from debt, with the proviso that his name was not to be made public in the matter, and it was understood by those to whom the gift was known that this amount was only preliminary to further endowments which he purposed to bestow upon the University Medical School. When, a few months ago, the trouble arose between the heads of the University and the Faculty of the Medical School, Colonel Payne, who had for some time been in the Council of the University, sympathized entirely with the latter, and when the majority of the professors sent in their resignations and joined the new Cornell Medical Faculty, he, in common with several other members of the Council, also resigned.

He accordingly transferred his generous designs from the University to the new institution which is now to benefit so handsomely therefrom, the gift announced being one of the largest ever made to a university, and larger than any previously devoted to the advancement of medical education. The architects of the college building, Messrs. McKim, Mead & White, have been instructed to spare no expense in meeting every material need of the students and teachers in the college and of the patients and physicians in the dispensary department. The cost of the building and land will be about $600,000, and the remainder of the donation is to form an endowment fund which is expected to yield a revenue of at least $40,000 a year. The site selected is on First Avenue, between 27th and 28th Streets, directly opposite Bellevue Hospital, so that the students will have the full benefit of the clinical material afforded by that institution. The building is to be in a severe style of Renaissance architecture, and constructed of Joliet or Indiana limestone and red brick. It will be 200 feet long, 100 feet deep and 85 feet high, with five stories. The dispensary department will be the largest in the city, occupying more than one-half of the first two floors. It is designed to push forward the work of construction so rapidly that the entire building will be ready for occupancy by October, 1899.

FATALITIES OF HOT WEATHER. — The recent long-continued term of excessively hot weather was attended by great mortality up to the end. On Monday, September 5th, there were 47 deaths reported from the heat. On the 6th, when the high temperature and humidity began to moderate, there were 20 deaths, and on the 7th, when the hot wave was finally broken by a violent storm, the number was reduced to 11.

AID FOR SICK SOLDIERS. — The Soldiers' Comfort Committee and the Red Cross Society have been doing a magnificent work at the station at the terminus of the Long Island Railroad, where hundreds of sick soldiers arrive every week from the camp at Montauk Point, and where an efficient hospital service has been established. Not only has an immense amount of suffering been relieved, but undoubtedly many lives have also been saved by these agencies.

CONDITIONS AT CAMP BLACK. — At Camp Black, on Hempstead Plains, Long Island, where several regiments of New York Volunteers who responded to the President's second call for troops have been encamped for a considerable period, there has been a number of cases of typhoid fever, with three deaths from the disease. Dr. Doty, Health Officer of the Port, recently made an investigation of the outbreak and arrived at the conclusion that the cause of the trouble was the contamination of the water of some driven wells formerly in use, but which have now been filled up for some time. As there have been no deaths of late and all the cases are reported as doing well, it is hoped that there will be no cause for further anxiety.

Miscellany.

GENERAL MORTALITY IN NEW YORK DURING AUGUST.

THE general mortality in the city during the four weeks ending August 27th represented an annual death-rate of 22.51 per thousand of the estimated population, against 23.26 for the four weeks ending July 30th. The deaths from diarrheal diseases averaged 320 per week and the deaths from diarrheal diseases in children under two years of age, 284, against 384 and 384 and 343.5 respectively in the four weeks of July. These figures go to confirm the fact that the mortality from this class of diseases is always greater in July than in August and the highest in any month during the year. The deaths from typhoid fever averaged 21.75 per week, against 6.75 in the four weeks of July. This marked increase is unquestionably due for the most part to the deaths of soldiers, large numbers of whom, suffering from this disease, have been received into the various hospitals of the city. The increase in the deaths from typhoid is a progressive one from the time the sick soldiers first began to be brought to New York for treatment. In the week ending July 23d there were but four deaths from the disease in the city. In the week ending July 30th there were 8, in that ending August 6th, 15, in that ending August 13th, 13, in that ending August 20th, 18, and in that ending August 27th, 41.

When we come to look at the deaths from diphtheria, scarlet fever and measles, we find the lowest mortality of the year. The deaths from diphtheria averaged 13.5 per week, against 24.5 in the four weeks of July. This is a peculiarly gratifying showing; for, while the mortality from this class of diseases is always smaller in midsummer than at other seasons, it is probably several years since the death-rate from diphtheria has been so low as that now recorded. The deaths from scarlet fever averaged 5 per week, against 11 per week in July, and the deaths from measles 5.75, against 11.25 in July. In the four weeks ending July 2d, the mortality from measles averaged 17.75 per week. The deaths re-

ported from sunstroke amounted to 60, against 99 during the four weeks ending July 30th. In comparing the general mortality of the different boroughs of the city, we find the same curious circumstance that was noticed in July, namely, that the summer death-rate is much higher in the comparatively sparsely populated boroughs of Queens and Richmond (Staten Island), than in the more thickly populated boroughs of Manhattan and Brooklyn. This is particularly noticeable in the week ending August 20th, in which we find the death-rate in Richmond (37.77) nearly double that in Manhattan (19.79).

AUTOPSY FINDINGS IN YELLOW FEVER.

A TIMELY article appears in the *Medical News* for September 3d, by Dr. Eugene Wasdin, Passed Assistant Surgeon, U. S. Marine-Hospital Service, "On the Value of the Autopsic Findings in Subjects Dead from Suspected Yellow Fever." Evidently the matter is of much importance in a campaign such as we have just gone through, and it is altogether desirable to render mistakes as few as possible.

Dr. Wasdin says: "The yellow-fever cadaver has assuredly a most characteristic appearance. All subjects dead from the disease bear a close resemblance to each other; indeed it would not be difficult to make a diagnosis, other facts being favorable thereto, from the cadaver alone. The body is usually quite rigid, this change in the muscles coming on early and persisting. The color is invariably more or less intensely yellow, and is due to a mixed hepatogenous and hematogenous jaundice. The entire skin is tinted, the scalp usually presenting a startling contrast to the parted hair, and the whites of the eyes are yellow, the change taking place in the conjunctivæ early in the disease, the scleræ becoming tinted later. This yellow tint is always contrasted with the deep purple discolorations from hypostasis which quickly appear in the skin of the dependent portions of the body after death, and which frequently appear before. It is at the edges of these hypostatic areas that the mixture of biliary and blood jaundice is particularly noticed as a muddy, thick, grayish-yellow tone. Hypostasis is common to all cadavers, but particularly is it prominent in this disease. It is not confined to the lower portions of the body, as the buttocks, loins and shoulders, but invades the neck, chest, ears and face; the genitals, as a rule, and the finger- and toe-nails are of a deep purple color. This discoloration occurs quickly, and is prominent within an hour after death. The pupils are usually dilated, the tongue foul, and the gums bloody; the anterior nares are caked with blood. This is a picture of a typical yellow-fever cadaver, and the appearances may be accentuated or softened, but the characteristic ensemble will be present in all."

The resemblance externally of the yellow-fever cadaver to that of a person who has died of malarial fever is often very striking. In such cases dependence must be placed upon conditions found in the internal organs. There is in yellow fever a general yellow tinting on section, and the spleen in uncomplicated cases is of normal size and appearance. The kidneys are always congested and swollen, and on section show fatty areas, particularly about the base of the pyramids within the cortex. The liver, the author has usually found normal in size and showing marked fatty changes. The vessels of the stomach walls are congested, the mucosa thickened and presenting numerous patches of extravasation and shallow erosions. The lungs are congested and yellow; the pleuræ and pericardium present numerous ecchymoses, as well as the heart muscle.

Histologically the fatty changes are best seen in the liver and kidneys. The liver cells are more granular, stain more faintly and contain numerous fat droplets; those of the kidneys lining the tubules, especially of the cortex, are also filled with drops of fat. The so frequent importance of an immediate diagnosis often renders the demonstration of the finer histological changes impossible for practical purposes.

The writer discusses briefly the bacteriology of the disease, and some personal experiments in which he was able in many cases to isolate a bacillus which give rise on inoculation to characteristic lesions. This experience has been that of many other observers. These organisms elaborate a toxin which exerts a characteristic and powerful influence upon the vasomotor system, as evidenced in the intense engorgement of the vessels, the gaseous, toneless pulse, and the full diastolic heart, prior to and post-mortem; also, in that rapid metamorphosis of the albuminoids of the highly organized cells of the liver and kidneys. The intention is not to contrast these organisms, but to accentuate the fact that there is no constant sign at these autopsies by which we can name the particular one which has produced the disease.

Dr. Wasdin quotes an interesting case occurring recently at Key West, in which, after careful examination, he concurred in the conclusion that the patient had died of yellow fever, but was later convinced that it was simply an intoxication from auto-infection with some member of the colon group of organisms.

"Finally," he says: "I would suggest that typical autopsic findings should always be regarded with suspicion, and demand immediate investigation of their cause. Should there be, or not, any local centre of auto-infection, there should be an investigation of the immediately preceding history of the patient, and should there prove to be evidence of exposure to infection of yellow fever, and should the clinical charts and history present the evidences of the disease which we have learned to recognise, then and only then can the information gained post-mortem be of decisive value to the diagnostician."

Correspondence.

THE CHICAGO ACADEMY OF MEDICINE.

CHICAGO, September 4, 1898.

MR. EDITOR: — The recently issued catalogue of the Chicago College of "Osteopathy" contains the assertion that the "orificialist surgeon," E. H. Pratt, one of its faculty, is a member of the Chicago Academy of Medicine. He has never been a member nor is he eligible. He is probably a member of the Chicago Academy of Homœopathic Physicians and Surgeons, an organization with totally different objects and purposes.

Kindly publish this in justice to the Chicago Academy of Medicine.

JAS. G. KIERNAN, *Secretary.*

METEOROLOGICAL RECORD

For the week ending September 3d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...28	30.28	62	69	55	53	62	58	N.	N.	5	8	C.	C.	
M..29	30.11	67	75	59	66	81	74	S.	S.	12	12	O.	F.	
T...30	29.95	77	86	68	79	63	71	S.W.	W.	9	9	C.	C.	
W..31	29.99	78	85	70	66	67	66	W.	W.	10	7	O.	C.	
T....1	29.98	74	79	69	80	82	81	N.E.	W.	5	4	C.	O.	
F....2	29.90	76	85	68	75	80	78	W.	S.	6	4	C.	O.	
S....3	29.82	78	92	65	72	70	71	W.	E.	12	9	C.	C.	.27
☞														

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thunderstorms; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 3, 1898.

Cities	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung disease.	Diarrheal diseases.	Typhoid fever.	Whooping-cough.
New York	3,438,899	1518	776	22.68	8.40	17.34	1.44	1.68
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	—	—	—	—	—	—	—
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	208	100	28.80	7.68	21.12	4.32	1.92
Boston	517,732	246	122	26.24	9.02	20.09	2.46	1.64
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	86	40	25.36	9.36	20.80	11.44	1.04
Washington	277,000	109	36	15.64	8.28	6.44	7.36	1.84
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	82	32	32.94	9.76	25.62	1.22	—
Nashville	87,754	27	10	18.50	7.40	18.50	—	—
Charleston	65,165	—	—	—	—	—	—	—
Worcester	105,450	47	25	36.21	—	27.69	2.13	2.13
Fall River	90,919	29	18	37.96	6.90	37.95	—	—
Lowell	87,193	37	21	43.20	10.80	40.50	2.70	—
Cambridge	86,812	36	19	42.78	8.31	27.70	2.77	—
Lynn	65,220	20	8	25.00	—	20.00	—	—
New Bedford	62,416	24	12	49.92	12.48	45.76	—	—
Somerville	57,977	21	14	61.88	4.76	23.32	—	4.76
Lawrence	55,510	23	9	17.40	—	17.40	—	—
Springfield	54,790	—	—	—	—	—	—	—
Holyoke	42,264	25	17	48.00	4.00	32.00	4.00	—
Salem	36,062	13	6	46.14	—	46.14	—	—
Brockton	33,353	11	5	36.36	27.27	36.36	—	—
Malden	32,891	14	9	35.70	14.28	35.70	—	—
Chelsea	32,716	11	3	—	—	—	—	—
Haverhill	31,406	12	7	8.33	16.66	8.33	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	29,980	4	3	—	—	—	—	—
Fitchburg	28,392	13	8	7.69	23.07	—	—	—
Taunton	27,812	13	5	30.76	15.38	30.76	—	—
Quincy	22,552	8	2	37.00	—	37.00	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	5	1	—	20.00	—	—	—
Everett	21,578	9	6	44.44	—	33.33	—	—
North Adams	19,135	11	6	27.27	9.09	27.27	—	—
Chicopee	17,368	6	5	66.66	16.66	66.66	—	—
Medford	15,832	10	6	60.00	—	50.0	10.00	—
Newburyport	14,794	4	1	25.00	—	25.00	—	—
Melrose	11,968	—	—	—	—	—	—	—

Deaths reported 2,705: under five years of age 1,339; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 742, consumption 236, acute lung diseases 152, diarrheal diseases 565, typhoid fever 65, diphtheria and croup 42, whooping-cough 36, cerebro-spinal meningitis 19, scarlet fever 7, measles 5, erysipelas 3.

From whooping-cough New York 23, Providence 4, Haverhill 3, Boston 2, Pittsburgh, Cambridge, Holyoke and Fitchburg 1 each. From cerebro-spinal meningitis Somerville 5, New York 3, Boston, Worcester, Cambridge and Holyoke 2 each, Baltimore, Lynn and New Bedford 1 each. From scarlet fever New York 5, Baltimore and Pittsburgh 1 each. From measles New York 4, Boston 1. From erysipelas New York 2, Baltimore 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending August 20th, the death-rate was 22.0. Deaths reported 4,727; acute diseases of the respiratory organs (London) 196, diarrhœa 994, whooping-cough 74, measles 57, diphtheria 53, fever 42, scarlet fever 30.

The death-rates ranged from 8.6 in Halifax to 31.1 in Liverpool; Birmingham 24.1, Bradford 16.3, Cardiff 17.3, Croydon 18.0, Gateshead 16.1, Hull 19.3, Leeds 24.7, Leicester 17.7, London 23.4, Manchester 22.6, Newcastle-on-Tyne 18.2, Nottingham 14.8, Portsmouth 21.5, Sheffield 26.9, Swansea 13.8, West Ham 20.4.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending August 27th, the death-rate was 23.2. Deaths reported 4,988; acute diseases of the respiratory organs (London) 135, diarrhœa 1,321, whooping-cough 84, measles 53, diphtheria 45, scarlet fever 19, fever 19.

The death-rates ranged from 13.7 in Huddersfield to 38.5 in Wolverhampton; Birmingham 24.4, Bradford 18.3, Croydon 21.0, Gateshead 21.6, Leeds 25.7, Leicester 24.0, Liverpool 30.9, London 21.5, Manchester 24.4, Newcastle-on-Tyne 26.7, Nottingham 16.8, Plymouth 24.2, Salford 28.8, Sheffield 30.5, Sunderland 25.2.

SOCIETY NOTICE.

AMERICAN ACADEMY OF RAILWAY SURGEONS. — The fifth annual meeting of the American Academy of Railway Surgeons will be held at the Auditorium, Chicago, Ill., Wednesday, Thursday and Friday, October 5, 6 and 7, 1898.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of the Lachrymal Passages: Their Causes and Management. The Prevention of Diseases now Preying upon the Medical Profession. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprints. 1898.

Studies on Trichinosis, with Especial Reference to the Increase of the Eosinophilic Cells in the Blood and Muscle, the Origin of these Cells and their Diagnostic Importance. By Thomas R. Brown, M.D. Reprint. 1898.

The Association of American Medical Colleges, Proceedings of the meeting at Denver, June 6, 1898, President's Address and Papers Read, Constitution, By-laws and Rules and Rulings of the Judicial Council, List of Colleges in 1896-98. Reprint.

The Office Treatment of Hemorrhoids, Fistula, etc., without Operation. Together with Remarks on the Relation of Diseases of the Rectum to Other Diseases in Both Sexes, but especially in Women, and the Abuse of the Operation of Colostomy. By Charles B. Kelsey, A.M., M.D., late Professor of Surgery at the New York Post-Graduate Medical School and Hospital, etc. New York: E. R. Pelton. 1898.

Atlas and Epitome of Operative Surgery. By Dr. Otto Zuckerkandl, Privat-Docent in the University of Vienna. Authorized translation from the German. Edited by J. Chalmers Da Costa, M.D., Clinical Professor of Surgery in Jefferson Medical College; Surgeon to the Philadelphia Hospital, etc. With 24 colored plates and 217 illustrations in the text. Philadelphia: W. B. Saunders. 1898.

Text-Books of Diseases of the Kidneys and Genito-Urinary Organs. By Prof. Dr. Paul Fürbringer, Director of the Friedrichshain Hospital, Berlin; Royal Medical Counsellor and Member of the Royal Medical Council of the Province of Brandenburg, etc. Translated from the German with annotations by W. H. Gilbert, M.D., Physician in Baden Baden, etc. In two volumes. Vol. II. London: H. K. Lewis. 1898.

Manual of the Diseases of Children. By John Madison Taylor, A.M., M.D., Professor of Diseases of Children, Philadelphia Polyclinic; Assistant Physician to the Children's Hospital and to the Orthopedic Hospital; Neurologist to the Howard Hospital, etc.; and William H. Wells, M.D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, Instructor in Obstetrics in the Jefferson Medical College of Philadelphia, etc. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1898.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M.D., LL.D., late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Medicine in the Cornell University Medical College; Physician to the Presbyterian and Bellevue Hospitals, New York. Volume IV. Diseases of the Nervous System and Mind; Vasomotor and Trophic Disorders; Diseases of the Muscles, Osteomalacia; Rachitis; Rheumatism; Arthritis; Gout; Lithemia; Obesity; Scurvy; Addison's Disease. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1898.

Address.

AUENBRUGGER AND LÆNNEC, THE DISCOVERERS OF PERCUSSION AND AUSCULTATION.[1]

BY EDWARD O. OTIS, M.D., BOSTON,
President of the American Climatological Association.

IT is quite improbable, I think, that we should be here to-day, or, indeed, have an existence as a society largely devoted to the consideration of diseases of the chest, were it not for the methods of thoracic examination which Auenbrugger and Lænnec have given us in their discoveries of percussion and auscultation. Without these two precious methods of investigation we could scarcely have arrived at any degree of precision or certainty in thoracic pathology, and might have been not unlike the old physicians and surgeons who would "swear," as Morgagni says, that there was fluid in the chest, when in reality there was not a "single drachm"; or perform paracentesis of the thorax upon a duke for an empyema which did not exist.[2]

It has seemed to me, then, eminently fitting that this Society should honor the memory of these illustrious men, by reviewing their lives and work, and be not unmindful of the debt of gratitude we owe them for their inestimable contributions to the science of our art and to humanity. In entering into their labors as we percuss the chest and apply the stethoscope, which reveals so exactly to the trained ear the condition within, let us not forget the years of patient toil and investigation of Auenbrugger and Lænnec, which, with native genius, resulted in their immortal discoveries.

Leopold Auenbrugger, whose "Inventum Novum" was given to the world in 1761, was born in the historic town of Grätz, Austria, in 1722. His father, Sebastian Auenbrugger, was a well-to-do freeman of blameless character; and both he and his wife, Maria Theresia, were well known for their kind-hearted and charitable dispositions, the kind of ancestry that has so often produced illustrious descendants. Leopold, their son, was brought up in a good, plain fashion, with pious and Christian instruction, and studied literature and philosophy at the university then existing at Grätz. Undoubtedly his parents discovered more than ordinary ability in him and determined to give him "privileges." What influences, if any, directed his attention to medicine we do not know; not unlikely he was "born to it," as we say, as some people seem to be destined almost from birth to certain careers, they develop a taste for them so early. At all events, he devoted himself to its study with extraordinary application and untiring industry, and completed his studies at the University of Vienna under van Swieten, graduating with great distinction.

He settled in Vienna, and after some years of private practice he was appointed at the age of twenty-nine, in 1751, physician to the Spanish Military Hospital, which was the best and largest at that day in Vienna. This position he held for seventeen years until 1768, when, a change taking place in the hospital, he retired to private practice, devoting himself untiringly to the study and practice of his profession. He manifested the same kind-hearted and charitable disposition characteristic of his father. To the poor he gave his valuable services freely, and with the same care and attention as to those who paid him well; particularly was this the case towards those from his own province. His benevolence and kindness extended to all about him, to his family, his servants, his poor patients and every one who came in contact with him. Charity, the leading trait in his character, was a virtue with him. He took poor students, clothed and fed them until they could finish their studies; and many physicians and surgeons were indebted to him for their start in life. What a beautiful picture this of the unselfish, humanity-loving physician, often enough repeated, be it said, to the honor of our profession, in this and all ages.

Possessed of an excellent constitution and enjoying good health, he continued untiring and indefatigable in his professional duties even to his latest days, full of goodness and philanthropy, as his great-grandson says.



AUENBRUGGER.

In chest diseases he was considered most skilful. His door-bell led to his sitting-room, and his little hand lantern was always in readiness, by the light of which he not infrequently went alone to visit his patients even to the remotest suburbs. One can see in imagination the kindly old physician trudging through the empty streets of the city at night, guided by the feeble flicker of his lantern, bound on his errand of mercy: to detect perchance some thoracic disease by the use of his own discovery; eager to the last to prove again and again the value of percussion. He was always a student and investigator, and was accustomed to make voluminous notes and histories of his important cases. He possessed a large library, rather unusual in those days, I fancy, and was a friend of the philosopher Werner. He was also fond of music, and for a great many years he used to frequent a certain baron's house every Sunday in the winter season to attend a musical matinee. He wrote a comic opera entitled the "Rauch-

[1] The President's Address at the meeting of the American Climatological Association, at Maplewood, N. H., August 31, 1898.

[2] Holmes, Oliver Wendell: Dissertation on Direct Exploration in Medical Practice, Bolyston Prize Essay. 1838.

fangkehrer" (chimney-sweeper) which attracted the attention of the Empress Maria Theresa who asked him to write another; but he replied that he had something better to do than to write comedies.

His home life was a happy one, having been married at a comparatively early age (thirty-two) to Mariana von Priesteraberg, with whom he had fallen in love when a student. They celebrated their golden wedding in 1804, a few years before his death. He had two children, daughters, one of whom spoke and wrote both Latin and Greek, and was a remarkable pianist; the other was noted for her beauty and wit. In the latter part of his life he lost the sight of one eye, but the other was so sharp that he could use it in reading and writing, and from his house could tell the time upon the tower of St. Stephen's Cathedral. His mode of life was very simple; and in his latter years he rarely touched meat but subsisted upon soup, vegetables and light farinaceous food. Two years before his own death his beloved wife Mariana died, and from that time he took little interest in life, remained most of the time in his study, and saw with pleasure only his granddaughters. His death was from the result of a cold, probably the pneumonia of old age. He retained his senses to the last, and predicted the day and hour of his demise. Looking up to the clock upon the wall of his room, he said, "When two strikes the end will come." And so it happened, in 1809, in the eighty-seventh year of his age.

Auenbrugger was ennobled by Kaiser Josef in 1784, and given the title of Elder von Auenbrugg, "in consideration," as it states, "of his useful services rendered to the public through his ability and excellent skill in medicine." "His life," says Dr. Clar who collected the fragmentary sketches of his career, "was a model of modesty, philanthropy, genuine devotion to the science and art of medicine, and of kindly regard towards the poor as well as the rich." In him was exemplified the highest type of the physician in private practice, uniting an extraordinary talent for investigation, intense devotion to his patients, and — an indispensable attribute for a practical physician — a sympathetic disposition. And, after all, is not the varied experience in the school of private practice the finest kind of training to make a well-rounded physician and man? keeping his medical sense keen and alert, his sympathy acute, his intellect active, his charity and compassion great, and his manners gentle, refined, and gracious. Each patient is a clinic, and often a liberal education to him. It has sometimes seemed to me that excessive hospital practice has proved rather an injury to some physicians, at least to their manners, if not to a thorough and careful analysis of their cases; perhaps, however, it is in the man rather than in the circumstances of his environment.

Although we possess but these meagre and fragmentary records of Auenbrugger's life, yet it is enough to enable us to fill in the lines and gain a pretty distinct idea of his personality and character. With some persons one does not need to be acquainted with much of the detail of their lives in order to know what manner of men they are; a few characteristic illustrations here and there in their career reveal the spirit and motive in life, and show the kind of men they are, quite as well and clearly as an extended and continous biographical narrative. Always enthusiastically devoted to the study of disease, Auenbrugger escaped the not infrequent misfortune of the student — a loss of sympathy with one's kind. His love for his fellowmen, for suffering humanity, for struggling students in his own profession, kept pace with his love for medical study. He never sacrificed the *man* for the scientist; nor did he lose his interest for other things in life, as happens sometimes with men intensely devoted to one pursuit. "A man of original powers," as some one has truly remarked, "can never be confined within the limits of a single field of activity."

He was interested in music, philosophy, and the drama, and well illustrates what Dr. Da Costa has so happily styled "the scholar in medicine." With dignity, sympathy, enthusiasm in his profession even to the last; ever seeking to improve and add to his art; modest like most great men; never refusing to give of his best to suffering humanity, he richly lived out his long life. As we teach our students percussion, as a matter of just recognition and due honor, let us tell them something of the life of its discoverer, at least his name, which I fear but few who avail themselves of the result of his long and arduous labors know.

Besides the "Novum Inventum," Auenbrugger published several papers, but his reputation rests, of course, upon the first. He was thirty-nine years of age when it appeared and had then had a hospital service of ten years. For seven years, as he says in his preface, he had been observing and reflecting upon it. "Scripsi illa, quæ sensum testimonio inter labores et tædia iterum iterumque expertus sum." "I have written that which I have proved again and again by the testimony of my own senses, and with laborious and tedious exertions." It is written in Latin, as most scientific works were in those days. He has not been ambitious of ornament, he says, in his mode or style of writing, being content if he should be understood. He begins his preface with the fact of his discovery. "Sisto tibi, benevole lector, signum novum in detegendis morbis pectoris a me inventum." "I present to you, charitable reader, a new sign which I have discovered for detecting diseases of the chest. This consists in the percussion of the human thorax, from the varying resonance of the sounds of which an opinion can be formed of the internal condition of this cavity. In making public my discoveries respecting this matter, I have been actuated neither by an itch for writing, nor a fondness for speculation, but by the desire of submitting to my brethren the fruits of seven years' observations and reflection. In doing so I have not been unconscious of the dangers I must encounter; since it has always been the fate of those who have illustrated or improved the arts and sciences by their discoveries to be beset by envy, malice, hatred, detraction and calumny." Alas! he had to endure what was perhaps harder to bear than any of these evils — neglect. "For many years after the discovery, Stoll alone acknowledged its value,"[3] having both used and taught it during the years from 1776 to 1784, and refers to it in his writings.

It was not, however, until forty-seven years later, in 1808, a year before Auenbrugger's death, that Corvisart, the first Napoleon's physician, and teacher of Laennec, revived the discovery by translating the "Novum Inventum" into French with copious commentaries; thus, in truth, making almost as great a discovery himself by discovering the original discovery. Corvisart,[4] when he commenced his studies, had never

[3] Geo: Auscultation and Percussion, London, 1808.
[4] Mailliot: Traité Pratique de Percussion, Paris, 1843.

heard of the name of Auenbrugger, and was completely ignorant of his discovery, until, in reading the works of Stoll, he became aware of it. From that time he practised percussion with perseverance upon the living as well as upon the cadaver, and after twenty years of observation and experience he translated Auenbrugger's work with his own voluminous commentaries. He demonstrated daily in his clinic the immense advantages of percussion, and popularized it among his pupils, who soon extended the knowledge of it throughout France and in all Europe. "The complete ignorance," says Mailliot, "of Auenbrugger's work in France; the works, great reputation, and high position of Corvisart would have made it very easy for him to have appropriated Auenbrugger's work"; a lesser man might have yielded to the temptation, but not the noble-minded Corvisart. "I know very well," he says in his introduction, "how little honor there is in a translation with commentaries, and I might have elaborated anew Auenbrugger's discovery and made an independent work upon percussion and so attained the rank of an author, and in this way sacrificed Auenbrugger's name to my own vanity. This I did not want to do; "C'est lui, c'est sa belle et legitime découverte (inventum novum, comme il le dit justement) que j'ai voulu faire revivre." Corvisart was a great physician, but this fine act shows him to have been a great man as well.

At the conclusion of his preface, Auenbrugger adds a sort of note, or, as he calls it, "Monitorium ad omnes medicos," in which he says: "I declare from experience, that this sign of which I treat is one of the greatest importance not only in detecting disease but also in curing it, and therefore merits the first place after exploration of the pulse and respiration. For, indeed, in whatever disease an unnatural sound of the thorax shall be observed, it will always indicate a grave danger." He closes his treatise with these memorable words: "Cedant hæc miseria in solatium, veris autem medicinæ cultoribus in incrementum artis; quod opto" — "May this work yield solace to the wretched, but to the students of true medicine an addition to their knowledge of the art; this I hope for." And Corvisart adds: "The concluding wish and prayer of the author have not been made in vain. This little treatise, as every candid practitioner may readily convince himself, contains most luminous precepts respecting the practice of percussion, and most exact and faithful observations on several diseases which were previously either misunderstood, singularly neglected, or respecting which very erroneous notions were for the most part entertained." And Skoda remarks: "Auenbrugger, with the fullest right, deserves the honor of being considered the founder of the new method of diagnosis."

Why a discovery of such evident and inestimable value, and of such practical and simple application should have remained so long unappreciated and neglected, it is difficult to say. One reason readily occurs to us: Auenbrugger was never a teacher, and, unlike Lænnec, he had no pupils to learn and extend his discovery. "It is possible," says Hudson,[5] "that had not Lænnec survived his discovery for some years and continued to demonstrate its employment and results to the younger generation, it might have left as slight an impression on the minds of the profession as had the treatise on percussion by Auenbrugger, which preceded it." Another reason may have been a tendency in the profession of that age to devote itself inordinately to the study of the Hippocratic doctrines and their elaboration, rather than a desire to enlarge the boundaries of medical science by experiment and investigation.

To rest content with present achievement is always fatal to future progress, and is likely to produce an unfavorable mental attitude towards any new discovery. How Auenbrugger felt about it himself we can only conjecture. That he was convinced that it was a substantial and important contribution to the science of medical diagnosis we can feel assured, from the fact that he was content to leave it to time to establish, for he never wrote regarding it again. He would not have been human, however, if he had not experienced a bitter disappointment, as the years rolled by, in observing how little recognition it obtained, and how little it was used, but his philosophy and experience doubtless taught him that this had been, and would be, the fate of many another discoverer. Nevertheless, he had the satisfaction of using it himself during his long years of practice, and while the rest of the medical world were groping in darkness over the diseases of the chest, he was enabled to illumine them by the light of his matchless discovery.

The treatise is written in Latin, as I have said, in the curious form of observation, axiom and scholium. Dr. Forbes, who translated it into English in 1824, says, "It is certainly written in no very classical style of Latinity." It is, however, for the most part clear and simple. The principles are two, as Gee[6] says: "first, that the sounds produced by percussion must be regarded simply as acoustic phenomena, and named accordingly; secondly, that the sounds are to be explained by reference to corresponding physical states, that is to say, to the presence or absence of air in the parts percussed." Upon these principles, as we know, percussion stands firmly established to-day.

Auenbrugger begins by describing the natural sounds of the chest, the method of percussion, and then the unnatural or morbid sounds. He next proceeds to describe the acute and chronic diseases in which these morbid sounds are observed. An observation or chapter is devoted to fluids in the chest; another to affections of the chest not indicated by percussion. One, treats of the appearance of the organs on dissection in cases where the preternatural sounds of the chest had been observed. The tenth observation treats of scirrhus of the lungs and its symptoms. The eleventh, of vomicæ in general. The twelfth, of dropsy in the chest; hydrothorax, pleurisy and dropsy of the pericardium. The thirteenth, of copious extravasation of blood; and the fourteenth and last, of aneurism of the heart. In his first observation he strikes the keynote of his subject, when he begins, "Thorax sani hominis sonat, si percutitur." "The thorax of a healthy person sounds when struck." The sound thus elicited from a healthy chest resembles the stifled sound of a drum covered with a thick woollen cloth or other envelope. The most sonorous region is from the clavicle to the fourth rib anteriorly. While undergoing percussion on the foreparts of the chest, the patient is to hold his head erect, and the shoulders are to be thrown back, in order that the chest may protrude, with the skin and muscles drawn tight over it; a clear sound is thus obtained.

One should percuss many well persons in order to

[5] British Medical Journal, vol. ii, 1879.

[6] Gee: "Auscultation and Percussion," 1883.

obtain an idea of the variation of the percussion noted in individuals of different form and condition. Percussion should also be practised in natural respiration and upon full inspiration. What better directions for learning good percussion does any modern manual upon the subject give? Regarding sound and tone, "Auenbrugger," says Gee, "in a sentence of fourteen words has summed up the acoustic phenomena of percussion 'Sonitus vel altior, vel profundior, vel clarior, vel obscurior, vel quandoque probe suffocatus deprehenditur.' The sound is a tone, clear or muffled, even to complete privation; the tone is of a pitch higher or lower." In treating of percussion of the chest in disease, he says: "If over the foredescribed pulmonary region, we perceive not the foredescribed pulmonary sound, equal on both sides, the force of percussion being equal, we may predicate the existence of disease where the sound is unnatural." "This," as Gee says, "comprises the whole theory of percussion."

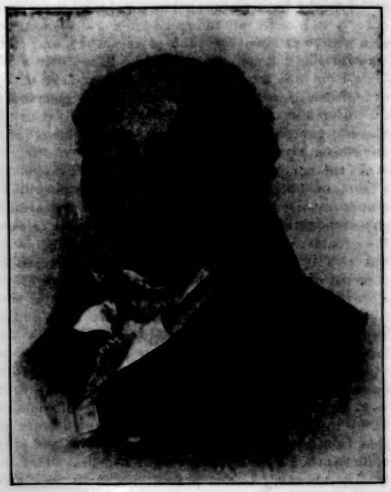
"If a sonorous part of the chest," he continues, "struck with the same intensity, yields a sound duller than natural, disease exists in that part. If a sonorous region of the chest appears, on percussion, entirely destitute of the natural sound, that is, if it yields only a sound like that of a fleshy limb when struck, disease exists in that region. The duller the sound, and the more nearly approaching that of a fleshy limb stricken, the more severe the disease. The want of the natural sound behind indicates more danger than it does on the anterior and superior part of the chest." In speaking of mental affections as causes of pectoral disease, he says: "I have observed none more powerful in rendering obscure the natural resonance of the chest than the destruction of cherished hopes." This reminds one of Shakespeare's well-known lines:

> "She never told her love,
> But let concealment, like a worm i' the bud,
> Feed on her damask cheek; she pined in thought."

Dr. Clar thinks he came perilously near the discovery of auscultation when, in treating of vomicæ, he says: "Si ad locum, ubi vomica percussionis signo delecta est, volans manus spuenti imposueris, strepitum puris manifeste distingues in pectore interno, idque dum tussiverit æger." "If one lays the hand over the spot where the percussion has indicated a vomica (pus cavity) and has the patient cough, he can clearly distinguish the rustling of the pus within the chest. "If, instead of the hand," says Clar, "he had said the ear, it would have been auscultation."

In distinguishing dropsy (pleuritic effusion) of one side of the chest he says: — "Besides the general signs of this disease, the affected side, if completely filled with water, is enfeebled and appears less movable during inspiration. In this case also the affected side yields nowhere the natural sound on percussion. If the chest is only half filled, a louder sound will be obtained over the parts to which the fluid does not extend; and in this case the fluid will be found to vary according to the position of the patient, and the consequent level which the fluid attains. Under signs of hydropericardium, "The sound in the cardiac region," he observes, "which I have already stated to be naturally more obscure than in the other parts of the chest, is now as completely deadened as if the percussion were applied to a fleshy limb. A swelling is perceived in the precordia which can readily be distinguished by its superior resistance from the stomach distended by flatus."

The foregoing extracts are enough to indicate the clear, orderly and thorough manner in which Auenbrugger developed his discovery and established its principles and application by careful, painstaking and repeated observations. "Scripsi illa quæ sensum testimonio inter labores et tædia iterum, iterumque expertus sum." Little wonder is it that he spent seven laborious years of observation and study in interpreting and applying the new evidence which percussion had revealed to him. When one considers the state of things before the "Novum Inventum" — an entire absence of any definite and exact diagnostic method of determining and differentiating thoracic diseases, and that a group of symptoms or a single symptom was the sole data for a vague diagnosis — he can perhaps realize the enormous advance which Auenbrugger's discovery of percussion and its development and application in the "Novum Inventum" made in



CORVISART.

the diagnosis of diseases of the chest. The mystery is that it remained so long unrecognized and unappreciated.

Corvisart, as I have said, was the discoverer of Auenbrugger, and by his translation of the "Novum Inventum" and commentaries upon it, established percussion upon a firm basis, and extended its knowledge. He was also the teacher of Lænnec, the discoverer of mediate auscultation; and thus by this happy coincidence united the two great discoverers, just as their discoveries are inseparably joined in practice. By his magnanimity and justice towards Auenbrugger, and his connection with Lænnec, Corvisart's memory is indissolubly linked with theirs, and shares their immortality, when it might have gradually sunk into forgetfulness if dependent upon his own attainments, as illustrious as these were. Thus virtue has its reward.

While Auenbrugger was spending the latter years of his life in the quiet pursuit of private practice in

Vienna, Laennec, all unknown to him, was growing up at Nantes and Paris, developing his acute intellect, which, nine years after Auenbrugger's death, was to give to the world the momentous discovery of mediate auscultation which should forever be the complement of percussion. One wishes that the two men might have been contemporaries and known each other. A mutual friendship would have been sure to have followed, they were so much alike in personal character and professional enthusiasm.

(To be continued.)

Original Articles.

ALBUMINURIA.[1]

CONSIDERATIONS SUGGESTED BY TWELVE HUNDRED AND FORTY-EIGHT EXAMINATIONS IN NON-RENAL CASES.

BY ARTHUR K. STONE, M.D.,
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ALBUMINURIA is a much considered subject, and one about which practically every clinician and many laymen have decided opinions, and yet one of general importance both from a clinical, and, as it were, its commercial side. The almost universality of examinations for albumin as a routine practice by the physician, and its adoption in life insurance examinations, has led to the discovery that albumin is by no means an infrequent condition in persons either supposably well or certainly not suffering from grave renal trouble. This, together with the division that is being made in the various forms of albumin found in the blood and eliminated in the urine, and although we may believe with Ducleau that many of the distinctions may be due to faulty methods and be rather *chimerical* than chemical, nevertheless, all these things make it necessary to look over the field of our supposed knowledge and experience and restate our position from time to time, so that we may have as definite a working hypothesis as possible.

In France, at the Medical Congress held at Nancy in August, 1896, the prognostic value of albuminuria was one of the subjects which was specially discussed. Also numerous papers have appeared at one time and another upon the subject, all showing a marked diversity of opinion in the interpretation of various well-recognized clinical facts.

As to the best method for testing for albumin, there is probably nothing better than boiling and the nitric-acid tests. I mention the two because any person using either one exclusively is liable to error, as I have seen albuminoid zone of more than a quarter of an inch in thickness form above the nitric acid when no albumin was precipitated by heat. And repeatedly small amounts of albumose are shown by the acid and are, of course, absent in the heat test.

Professor Ott has made a series of comparative examinations in about fifty cases, using sixteen of the tests which are in common use. He found that Spiegler's reagent and the sulpho-salicylic acid gave the clearest results with the minimal amounts of albumin, and concluded that the latter was the most practical for the general physician. Millard and Tanret were very clear, but both in presence of large amounts of urates or pepton (?) give a clouding which, however, will clear on warming. Rosenbach's chromic acid and Jolles's reagent were the least reliable.

The weight of authority at present appears to be that all albuminuria shows a pathological condition and that under strictly normal conditions albumin is not found in the urine.

The reasons for the appearance of albumin in the urine are not clear, neither is the form of albumin perfectly understood at present. The generally accepted idea of a serum albumin is denied, because, say some, serum albumin as an entity is not found in the blood and secondly, it is not diffusible if it was there, and thirdly, the vessel walls are not diffusible membranes, at least in their normal conditions. Therefore, these observers say that albumin is not a simple filtration through the vessels of the Malpighian tufts, excepting, perhaps, in cases of traumatism and very acute processes where the conditions much resemble those of general inflammatory character. Otherwise than this, the presence of the albumin seems to be dependent upon the condition of various albuminoid bodies in the tissues and the condition of the epithelial cells of the kidney. The solution of this problem must come from the pathologists who, with their improved technique in hardening and cutting sections, can be expected in a short time to throw some definite light upon the conditions existing in the renal cells.

Whether or not all the observations of the changes undergone by the proteid molecule in the body tissues are correct, it is doubtless that the proteid material has many changes in its molecular arrangement while in the various tissues, and it is probable that the final katabolic and oxydizing changes leading to the formation of urea, etc., are effected in the epithelial cells of the glands and that the muscles do not reduce the proteid material to its final form. Although urea, which is the form in which the greater portion of the proteid material is eliminated, is probably a synthetic hepatic product, nevertheless, the renal cells doubtless have their part to play in the oxydizing process, in addition to their duty of extracting urea from the blood and excreting various other metabolic products found in distant organs. Should there arise for any reason, such as a deficiency of oxygen from the ingestion of large amounts of fats, sugars and oxygen-consuming foods, an imperfect conversion of the proteids into their end products or should there be an excess of albuminoid material above what the body cells are able to dispose of, these proteids may be forced upon the renal cells and be in greater quantities than the gland cells are able to reduce or the renal cells to handle, and then there is an escape of unreduced albuminoid material into the urine. Or the toxins free in the blood, whether there from the presence of micro-organisms in the infectious diseases, or from drug poisons, or from the so-called auto-intoxication or septic absorption from the intestine or from the presence of unusual albuminoid products due to varying conditions of depressed vitality, whatever the cause, these toxins may cause partial degeneration of the renal cells, whereby there is lessened ability to perform their usual function and which is, therefore, followed by the escape of albumin.

That the matter is dependent upon epithelial changes rather than vascular is of everyday observation. When large amounts of albumin are seen dependent

[1] Read at a meeting of the Clinical Section of the Suffolk District Medical Society, April 20, 1898.

upon degenerative changes, while on the other hand, the most extensive vascular changes can take place in interstitial nephritis without the presence of any albumin whatever, or as is more usual appearing in very small amounts until late in the disease where there is marked degeneration of the renal epithelium.

The condition first described, due to an overpowering amount of work put upon the epithelial cells, would be in a measure comparable to what takes place in the epithelium of the intestine during digestion. These cells can only take up proteid bodies in the form of pepton, but pepton once within the cells is probably converted immediately to some other non-poisonous form before it is turned loose into the circulation to be utilized by the tissues of the body. In case large amounts of pepton are forced upon the cells, they may be incapable of converting it to non-toxic forms, and consequently some of the pepton escapes into the circulation and produces slight symptoms of pepton intoxication, though the greater part is taken up and converted by the hepatic cells.

Such conditions as have been mentioned may be produced in various ways:

Excess of proteid material in the blood may be produced by excessive albuminoid feeding. Professor Ott made trial in fourteen cases of feeding with raw eggs or prepared egg albumin, and in all but three he had positive results.

Excessive exercise has been said to produce albuminuria by setting free large amounts of material in the process of metabolism. In connection with this assertion it is interesting to note that an examination of the urine of the eight leaders near the end of their ride in the six days' bicycle race at Madison Square Garden resulted in albumin being found in but one of them, and that was a man who had slept a great deal more than the others, but had lived almost exclusively on beefsteak. On the other hand, Muller observed that in a number of bicyclists, both professional and amateur, that albumin with casts could be induced by a few hours' ride, while it was absent after a few days' rest.

Drug action is shown by an observation of Welander, when in one hundred syphilitics examined before treatment, seventeen had albumin, all with single or few hyaline casts; but after inunction treatment there were only three who did not show albumin and casts and about a third showed the presence of as many casts as are usually seen in a case of chronic nephritis. Toxic conditions producing slight albuminuria are common after practically all the bacterial diseases.

Another interesting report was made by H. Liepmann in cases of delirium tremens. Here there are two factors to consider, one the action of the poison alcohol on the cells and the other the condition of the central nervous system. Of 72 cases tested in the midst of the attack, 56 or 76 per cent. had albuminuria. Of these seven died, five of whom had distinct nephritis while two had none. Of the remaining 49, sixteen were found to have persistent albuminuria, while the others cleared soon after the attack. In very few of the cases was there any fever during the attack but the amount of albumin seemed to follow the pulse curve, and disappeared either with the crises or within a few days.

By itself, albumin is of no prognostic value; it may be present in very large amounts, as in acute cardiac dilatation and eclampsia, and yet disappear, the amount of albumin giving no idea either of the immediate outcome or of the remote conditions which may ensue. On the other hand, smallest amounts or even entire absence of albumin is not incompatible with the most extensive conditions of renal degeneration. The whole matter may be summed up by saying that albuminuria when present is but one part of the picture, and needs the other facts to enable one to give a judgment upon the case at hand; especially to be considered of importance is the total urinary excretion, and the amount of solids, especially urea, which the urine contains, together with the general physical examination.

Time was when it was thought that casts were of great prognostic value and many clinical teachers insisted that it was of the greatest importance to search for casts in suspicious cases, even if no albumin were present. The use of the centrefuge has seemed to show that single casts can be found in almost every urine, certainly in a much greater proportion of cases than show albumin in the urine, and the deduction must be made that a few hyaline or fine granular casts of small diameter, with or without an occasional epithelial cell attached, show, considered by themselves, absolutely nothing as to the condition of the kidney.

These general principles being granted the question yet remains, What is the meaning of the presence of small amounts of albumin found in the urine? Have they any prognostic value whatever, or are they to be disregarded? Shall the albumin remaining after a nephritis be considered serious and indicative of future danger, are the cases of cyclic albuminuria pre-nephritic or do they constitute a condition by themselves? Is the so-called *albuminuria minima* seen in young people of "gouty or rheumatic tendencies" apt to develop into renal complications later, or is it an indication of a developing tuberculous condition and the first manifestation of the toxic action of the tuberculin upon the system? All these are much vexed questions at the present time and will need considerable time and observation to settle, for they have been but recently formulated in the light of our present knowledge. For example, cyclic albuminuria occurring in persons of good health has been known and accurately described as to the symptoms and the amount of albumin excreted since the days of Pavy, but only a few observations of cases extending over a number of years have been made and these are contradictory. One case has been known to develop later into a red contracted kidney; another at the Hôtel Dieu remains in good health after eight years, the only change being that the albumin, which was albumose in the beginning, is now ordinary albumin.

In the case reported by Long, of Buffalo, there has been a complete disappearance of the albuminuria, although several pregnancies have intervened.

As to the simple albuminurias, many who have been rejected by life insurance examiners have been under observation for long periods without any change in the amounts of urine, and certainly no tendencies to develop renal conditions. But in all such cases as Symonds suggests the "expectation of life" must always be taken into consideration. Others, of course, have become nephritic or developed early in life some condition which it would seem that the albuminuria had foreshadowed. The man who has had one or two such experiences is apt to be biased in his judgment in one way or the other. And it really needs at the present time that there should be some united effort

made to collect such cases in large numbers and to attempt to draw some general conclusions. As an example of what I mean, Bickerton, of New York, has been able to follow 114 out of 148 cases of persons rejected by life insurance companies for albuminuria during a period of eight years, and in this time twenty of the number have died. In none of these were casts found nor was the patient in general "bad" condition.

In looking over cases where there is any attempt to draw conclusions in regard to the amount of albuminuria, one finds that the statisticians have written from greatly differing points of view. One man from the nature of his practice, whether clinical or laboratory, sees urines which from the age of the patients, manner of life and other general factors show large percentages of albuminuria and draws his inferences accordingly, while others looking over healthy persons, or where there is but a comparatively slight deviation from the normal arrive at entirely different figures, and apply an entirely different process of reasoning to their results. This will be appreciated better by a few examples.

Dr. W. Moore reports that in over 8,000 life insurance reports, he found about six per cent. of the cases had albumin. This is the lowest amount reported, and is derived from observations of persons who are supposed to be healthy, although this figure would probably be lowered by elimination of those who really should not have attempted to pass an examination. Symonds says he now finds albumin in about five per cent. of his cases, but does not give any numbers on which he bases his statement. In a series of 635 cases taken from artillery men in the Swedish Army, young men in supposedly good health, fifteen per cent. showed albuminuria. Explanation here seems difficult, for the possibility of venous stasis by dilated soldier's heart does not seem probable as the amounts noted were not increased so far as observed by exercise, amount of alcohol or kinds of food ingested. Another series of cases showed that out of 100 cases of obesity, there were 26 having albumin; of 100 diabetics, there were 33, and of 100 gouty subjects, 58 had albumin. In the former cases, degenerative changes had evidently not developed, while in the latter when there was well-marked gout, degenerative conditions would be expected to be making their appearance throughout the body. Dr. F. C. Shattuck found albuminuria in about 74+ per cent. of a series of cases, and drew his conclusions not as to the absolute longevity of the patient, but as to the immediate conditions.

My series of cases, which numbers 1,248, was taken from the Woman's Out-patient Clinic of the Massachusetts General Hospital and represents a given class of patients, that is, working girls and women and the wives of industrious laborers and clerks, people who occupy about the same station in life and whose surroundings are very similar. From this list I excluded those who were beyond doubt nephritic cases or cardiac cases with any sign of dilatation and venous stasis, also those cases where there was well-marked tuberculosis or other diseases accompanied by well determined degenerative conditions. This left to be considered, for the most part, cases where anemia, hard work, enteroptosis, pelvic conditions, dyspepsia, etc., many cases in the indefinite stage where observation alone extended over considerable period, would determine whether the condition is simply a transitory one or due to the advent of more serious trouble. The report is interesting as being exclusively women, whereas most of the tables coming especially from army and insurance statistics have been from men, or coming from hospital reports have been mixed.

For the most part, the urine was from cases which showed some special symptom or symptoms which suggested the desirability of a urinary examination, although, if there were time and force enough I would have some urinary examination of every patient, so as to get hold of the one or two renal cases which otherwise escape recognition if not entirely, at least for several weeks. At one time such general examination was made and at the same time enough cases catheterized to make sure that there was no increase in the amount of albuminuria in freshly-passed specimens from leucorrhea, etc., as is often asserted to be the case. All menstruation cases were, of course, eliminated, and cases where there was cystitis. After filtration, the nitric acid and heat tests were used in combination, wherever there was any doubt. The total number of cases was 1,248 and the total number of times that albumin was found was 298, or 23.08 per cent. The highest percentage was to be found in early life, in the time when it has been observed that the so-called transitory albuminurias are most apt to occur. For the next three decades the figures are practically the same (22+ per cent.), but when the age of fifty is reached, there is a distinct advance in the number to 26+ per cent. as would be expected from the beginning of senile changes.

The importance of the consideration of these cases lies in the small number of patients found where albuminuria was a symptom. The patients were distinctly not well, and yet but 23 per cent. showed albumin.

Age.	Total cases.	Albumin.	Per cent.
15-20	26	31	31.6
20-30	418	96	22.9
30-40	296	65	22.1
40-50	238	54	22.7
50-60	141	37	26.2
60-70	49	13	26.5
70+	6	1	16.6
Total	1,248	298	23.08

Alcohol, excessive exercise and excessive feeding could have but very little influence in determining the results in these cases. A large number of the albuminurias were found to be distinctly transitory in character, as was shown by later examination and attempts to study the conditions shown in the twenty-four hour amount of urine.

I have come to consider those cases presenting persistent, slight albuminuria as, on the whole, less tractable to general treatment and hygienic measures than those not having this symptom. That the albuminuria, while it showed no indication of renal disease *per se*, yet was a distinct danger-flag showing conditions of mal-oxydization, which pointed to the need of the most careful examination into condition of the circulation and possible causes of mal-assimilation of food in the attempt to establish the cause of the conditions under consideration, always remembering that no albuminuria is physiological.

Further, that the complete examination of the urine is of but little additional value in such cases of small amounts of albumin compared with the knowledge that may be gained by careful observation for several

days of the amount of urine passed in twenty-four hours, its specific gravity and acidity, and if possible, the total amount of urea excreted.

Such observation of the gross urinary conditions, together with careful attention to the condition of the circulation as manifested by the heart-sounds and strength of the pulse, condition of the arteries and a consideration of the factors leading to any digestive disturbance; in other words, careful study of the general clinical conditions in the great majority of cases, give a much clearer insight into the conditions of the case than exact knowledge regarding minute microscopic or chemical changes of a single specimen of urine.

THE QUESTION OF RESPONSIBILITY IN CASES OF SEXUAL PERVERSION.[1]

BY FRANCIS W. ANTHONY, M.D.,
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THE question of responsibility in cases of sexual perversion seems to have met with little consideration either in medical or legal circles, in the former less perhaps than in the latter, for here certain broad principles govern the matter, the obscurity being in the application to individual cases. This is due in part, doubtless, to the instinctive aversion to things impossible to the normally constructed mind, and, perhaps, more to the rarity with which these cases come under the observation of any one man, unless an expert in that particular line. The importance of the question is, however, great. To condemn to punishment an irresponsible party is unjust; to allow to go unpunished a responsible rascal is poor public policy; to view the correct answer with indifference is unworthy of thoughtful and scientific minds.

I shall endeavor in this paper to recall to your attention certain facts already well known, to illustrate my subject by a few clinical cases that have come under my observation, and to discuss the question of responsibility from a medico-legal standpoint.

The sexual instinct in a given being is inherited from two diametrically opposed appetites, the male and the female — one active and aggressive, the other normally passive and receptive in tendency. In the early life of the embryo the embryonic possibility is equal; as time goes on an unknown factor determines sex, but even then and for much time afterward, what I may term *latent* sexuality is all that is normally possessed. At the time of puberty, in normal development, there comes an impulse to genital stimulation, and, later, the various methods of acquirement of this stimulation are learned and, later still, the method of receiving the greatest pleasure. We may roughly divide the elements in the case into purely physical — inherited tendency and physiological development — and psychical. The latter is manifestly a matter of education. Even if you assume a material basis for mental operations, education plays so important a part in the development of that basis that it must be considered a potent factor. Inheritance has, therefore, a distinct effect, first by causing certain tendencies to physical conformations and development, second by transmitting a certain amount of the effect of previous education in psychical tendencies. These influences, physical and psychical, may be both *plus* from each parent, both *minus*, or antagonistic in various combinations.

The determination of the *direction* of sexual desire is largely educational, the physical dealing more with its simple existence. An illustration of this is the fact that little or no desire is felt toward a mother or a sister, since the "mental attitude" toward these relations is established long before the latent sexual appetite becomes potent, and this appetite is maintained under normal conditions, unless isolation may allow the physical element to dominate.

Now, when the physical development accentuates the desire, the question of education is of paramount importance, and it is at this time of puberty that a wrong direction given to desire, either by accident or design, may be the factor that determines for all time the sexual life of the individual, assuming, of course, a mental condition normal up to that time, and a normal physical environment.

An incongruous sexual appetite once established, opposing influences, if sufficiently strong, may overthrow it. These influences may be educational, moral, or punitive, the latter, as a rule, settling the question of indulgence rather than that of tendency; the moral acting much in the same way; while the educational, by substitution, may cause entire change of direction; although the tendency of sexual perversion is towards continuance, the length of its existence being important in this consideration.

From what I have said you can easily see that congenital perversion would be comparatively rare. You might possibly include under this head those cases of congenital mental degeneracy, a manifestation of which is more marked at puberty — but here the educational element must be considered — and a few cases of perversion in young children, due generally to pathological local conditions. Chaddock says, "Psychosexual anomalies are developed upon a degenerate constitution, which may commonly be traced to a neuropathic disposition inherited from ancestors," but note he says, "developed upon," which would beg the question at issue.

Von Ebing divides the chief cerebral neuroses which might be concerned in sexual perversion into:

"(1) Paradoxia; the sexual excitant occurring independently of the physiological processes in the generative organs.

"(2) Hyperesthesia; abnormally increased impressionability of the *vita sexualis* to organic psychical and sensory stimuli, central, as in nymphomania and satyriasis, or peripheral.

"(3) Paresthesia, excitability of the sexual functions to inadequate stimuli, the domain of psychopathology.

"Paradoxia is illustrated by sexual instinct in childhood and in old age; hyperesthesia may be caused by local irritation and may be intermittent or periodic. The diagnosis of paresthesia depends upon the investigation of the whole personality of the individual and the original impulse leading to the act to distinguish perversion (disease) from perversity (vice)."

A moment's consideration will make clear to you that neither hyperesthesia, paradoxia, or paresthesia contains in itself a *necessity* for perversion; each may tend to gratification in natural channels. The possession, however, of any one of these gives an impetus to a perversion once acquired, and a tendency toward gratification that seizes upon a present opportunity

[1] Prize essay read before the Essex North Branch, Massachusetts Medical Society, May, 1898.

though out of the normal channel, and may well form a habit that becomes, later, imperative in its direction.

The ordinary forms of perversion are termed: "Sadism, the association of lust and cruelty; masochism or passivism, the association of endured cruelty and violence with lust; fetichism, lust associated with clothing; homosexuality, sexual leaning toward members of the same sex; bestiality; pederasty; sodomy; necrophilia and incest."

Some of these, however, evil though they may be in their effect on the individual, have but little interest for the community at large, since they injure only the possessor of the perversion; others, when carried to an extreme, have general interest, while still others are always of public concern, since they may injure at any time the lives or the happiness of those dear to us.

Sadism carried to an extreme may become lust murder. Homosexuality, bestiality, pederasty, sodomy and necrophilia are debasing in their general effect. Incest may be cruel, and certainly is demoralising.

The legal punishment of unnatural acts is imprisonment in the State-prison for the term not exceeding twenty years, and the statute is quite broad: "Whoever commits the abominable and detestable crime against nature, either with mankind or with a beast" shall be thus punished.

The determination of responsibility from the legal standpoint presupposes the basis of conscience, an intuitive power of discrimination between right and wrong; this being absent irresponsibility is the necessary consequence. It is a fundamental maxim of criminal law that "the act itself does not make a man guilty, unless his intentions were criminal." The power of discrimination being present, the question of dominating influence of perversion seems to enter into the matter but indirectly; the main point is, did the accused at the time of the illegal act know that he was doing wrong; if so, whether he be judged mentally unsound or not, he was legally responsible, and for the failure to obey the dictates of his conscience is amenable to punishment. Of course this brings in the question of relative and absolute right and wrong. Are we to judge a person from his conception of right and wrong or by an absolute standard? The mother on the banks of the Ganges, who hurls to the crocodiles her infant, does what she thinks is right. The majority of thinking minds would disagree with her. The absolute standard can be absolutely known only by an Infinite Being. The relative standard determines responsibility. The standard set up by the custom of the environing influence is the one accepted by the individual conscience, for I must doubt an intuitional conscience so acute that it can override its environment in the establishment of a standard. As I have said, this individual conscience, as regarded by the legal mind, is not subject to irresistible influence. "The object of law is to help control a so-called irresistible impulse"; or as one judge put it in substance, in answer to such a plea, "I, too, have an irresistible impulse to sentence you," etc. Civil incompetency does not bar out criminal responsibility, — this is almost self-evident. In the consideration of the matter of responsibility the design of the person under investigation, the adaptation of the means employed to the end accomplished, his appreciation of the nature of his act and its consequences, the existence or absence of a distinct motive, are all to be given due weight.

I will now take up a few cases of perversion that have come to my knowledge, classify and discuss them briefly.

Case I. G. M., male, age forty-nine, an inmate of a public institution; family history negative, unless it be of importance that his mother died of paralysis of the brain. G. went to school from 1848 to 1865, after which he did housework at home, and in various families in the city where he lived. He states that he never was very sick, never married; had his first sexual connection in 1861, in which year he also began to use the male sex improperly; was led into this by others who induced him to perform masturbation upon them, and paid him small sums. About the same time he began to practise lower and more vile methods, in which he persists; is seldom paid for this, but does it for the enjoyment it is to him, although he denies the orgasm which he claims can be produced under normal stimulation; prefers young men with black hair and blue eyes; dress makes no difference. The physical examination of G. was largely negative. The penis was natural, the scrotum somewhat flabby, testicles very small. The keeper of the institution says that G. is mentally weak, as is indeed manifest in his manner and conversation; he cannot discuss things intelligently; masturbates constantly, but denies it even when caught; is eager to make the acquaintance of new men and boys; after he succeeds in his desires is very sick and vomits. He says that G. lies about women attracting him, and has been known to flee from their solicitation. His physical health in general is poor; has cough, poor appetite, nervous, almost always awake at night. A man who has known him since childhood says that he was the same when at school. His brother is a man of ordinary intelligence.

This case is undoubtedly a case of homosexuality, due to a congenitally weak brain, the sexual direction having been perverted by solicitation at the time of puberty, and becoming afterwards dominant. Such a person although distinguishing right and wrong, for he never solicits openly, would be unjustly sent to prison, for the mental power is so weakened congenitally that the dominant perverted sexual instinct overrides the glimmering conscience. Repeated punishments, once that of being hurled headlong into a mud pond by an indignant man whom he had solicited, have exercised no restraining effect. Doubtless in prison — no punishment for him — he would continue his practices did opportunity present itself, and would at once renew them on regaining his liberty. Restrained he should be, in the interests of morality and of the young. An asylum would be the fitting place for him, or a public institution, like the one he is now in, if he can be somewhat watched.

Case II. This case is much different. M. C., merchant, age forty-five, seen by me in consultation; family history distinctly neurotic and somewhat tuberculous. Previous general history negative. Consulted his physician for excessive sexual excitement and desire. The following history was obtained: Always passionate, masturbated when a boy at intervals from twelve to twenty; after the act an uneasiness, existing previous to its accomplishment, was allayed, and a period of depression followed, succeeded by ease and comfort for an interval, that gradually shortened. After marriage was excessive in indulgence, and, as time went on, tended to perverse means of gratification; is the father of four children, all healthy, the oldest a girl now sixteen, the youngest eight years; annoys his wife even now by importunity; four years ago began to notice diminution in power with increased desire; never had venereal disease; two years ago noticed failure of bladder to fully eject its contents; at present emission often takes place with partial erection; desire increased by sedentary employments; mental condition good, except

mind somewhat centred on condition; judgment good, and has good rating for intelligence among his business associates; his wife states that his importunity is increasing, his vigor decreasing, his excitement extreme.

Physical examination absolutely negative, except that his testicles are small and apparently atrophied; his prostate gland much enlarged, and this, together with the seminal vesicles, quite tender to rectal touch.

Diagnosis. — Chronic inflammation of prostate gland and seminal vesicles, consequent peripheral sexual irritation, producing a hyperesthesia, a condition starting probably in boyhood as a result of masturbation, and increasing as years went on by unhygienic habits. The etiology of the tendency to perversion, which was not extreme, I was unable to bring out in quite a careful cross-examination. M. C. showed, however, a leaning toward sadism, of which his wife bitterly complained.

This man with a peripheral origin for his trouble, and a mental state but little removed from the normal, had no irresistible impulse. Should he ever, remaining under the present conditions, commit an illegal act, he would be justly held responsible for it; for, while perversion might tempt him and sadism attract him, he is, in my judgment, capable of resisting them both, and would be a proper subject for legal punishment were he liable to its infliction.

The prognosis given was fair; the treatment suggested: bromide of potassium to the point of saturation, then a gradually diminishing dose; the cold douche to the perineum, sexual indulgence in relative moderation but by strictly normal methods; mental employment, and severe physical labor out of doors as much as possible. Eight months later he was reported to me as much improved, though still showing, to a degree, his tendencies.

CASE III. C. J., forty-eight years old, male. Family history as regards father is negative; mother in early life bright and promising, is said to have been a belle in the community, but by a life of dissipation fell to the lowest depths of humanity, living in one room with her son, with one bed and, by common report, as his mistress, an allegation denied by the parties interested; one brother died young of paralysis. C. is now forty-eight, has been a rugged man, he has used alcohol considerably; went to school when a boy, had a common school education. When about sixteen, in the absence of his father and mother from home, he was coaxed into the bed occupied by the hired girl, which visit was often repeated without solicitation. Has always been excessive in sexual relations, illegally, since he was never married; has had gonorrhea twice; has no inversion; is somewhat perverse in his relations. The low and vile appeal to him more than those higher in the social scale; is a man of very limited mental capacity, commonly regarded as mentally deficient. In denying sexual congress with his mother, his reason was not the inherent wrong of the act, but the lack of necessity therefor owing to other surroundings. Still he is said to have as much as admitted these relations.

This case is that of a man congenitally deficient in mental power, with sexual appetite stimulated early by female seduction, and indulged without moral restraint of training or environment. His illegal acts, if such were committed, could, however, be properly punished, for while, doubtless, the enormity of the offence would not be normal in its appearance to his mind, still he has a conception of right and wrong and can distinguish between them.

CASE IV. I was asked three years ago to see D. S., a boy of five, who for two years had been addicted to the habit of masturbation. He had been judiciously treated by the family, reasoning and firmness without extreme severity had been faithfully used. The habit had increased against apparent real efforts on the part of the boy to overcome it, and of late a tendency to perversion had begun, his younger brother of three being made the active or passive agent of sexual gratification. The night clothing was constantly soiled, and the boy's habit of thought was rapidly taking a fixed direction. The mother was dead of phthisis, and was of a phthisical family; the father's history was negative, except that he was a passionate man. On examination of the boy I saw no evidence of central lesion, and regarded the case as one of paradoxia from a local hyperesthesia, induced in all probability by an irritation due to balanitis and a prepuce that could not be retracted over the glands. The family had about made up their minds to place the boy in a reformatory institution, in fact I was called in to advise as to what institution they should choose. I advised delay, circumcision, and the absolute separation of the two boys, continuing at the same time all the uplifting, mind employing and encouraging methods previously used. We were aided by the apparent desire on the boy's part to assist us, he saying, "I do not want to do this but when the fit comes on I seem to have to." Six months ago the boy was reported to me as normal in every way, free from bad habits, and with a mind happily employed in other than sexual directions.

This is a case of paradoxia from hyperesthesia, due to peripheral irritation. Removing the cause cured the boy. I have not the slightest doubt, but that, untreated, he would have become a sexual pervert of a marked type.

It might be said in reference to these cases and to this subject, that the cases were so rare and the subject so unfrequently requiring treatment, as to make it of little practical interest. One who makes such an assertion has little idea of the underground life of our cities. I have been told that there is in a community not far removed — and I am informed that the fact is true of nearly every centre of importance — a band of urnings, men of perverted tendencies, men known to each other as such, bound by ties of secrecy and fear and held together by mutual attraction. This band to whom I refer embraces, not as you might think, the low and vile outcasts of the slums, but men of education and refinement, men gifted in music, in art and in literature, men of professional life and men of business and of affairs. To themselves, by the attraction of their presence and surroundings, they draw boys and young men, over whom they have the same jealous bickerings and heart burnings that attend the triumphs of a local belle. Quarrels for preference are frequent; yet must, by the nature of things, be kept to themselves. The triumphant suitor carries to his house and his room his innocent victim, and then begins a course of sexual perversion, the teacher an adept, the pupil a novice, until a new star arises, or satiety compels a rest. The sexual propensity of the young is perverted, or may be inverted, and a life is ruined almost beyond hope of recovery from the low plane to which it must fall. Difficult of detection as such acts are, difficult of legal proof as they must of necessity be, committed by men most, if not all, of whom are legally and morally responsible, is it not of importance that the subject be brought to the attention of the general practitioner, that he may be on the alert?

It may fall to the lot of one of you to be the active means of destroying such a school of vice and perversion. Nay, more than that, it may be your son or the son of your intimate friend whom you are called upon to rescue. If it comes in the line of your duty

to take a hand in the overthrow of such a circle, I beg of you to let no dread of notoriety, no consideration of position, standing, or influence come between you and the fulfilment of such a duty. Exercise all due charity, have the suspected and accused submitted to a most thorough examination to determine his responsibility, and then have him removed from the community to his proper place, be it asylum or be it prison.

The conclusion that I reach from the study of the subject is this: The question of responsibility in these cases depends largely on the ORIGIN of the trouble; if *peripheral*, it is rare that the patient is irresponsible. I do not maintain that the brain may never become secondarily affected; if *central*, responsibility may be more doubtful or may be decisively negatived, though here again the rule cannot be a fast one. With this, however, as a general rule the matter of decision, while simplified, is none the less complex. In many cases it demands careful, intelligent, trained scrutiny; it demands the life history of the person in question to the minutest detail, from the manner of birth through the physical and psychical development to the age he may have attained, and careful consideration of hereditary influences, the circumstances of environment and education; it demands scrutiny of manner, weighing of probabilities, determination of veracity; it demands thorough and exhaustive physical exploration. It is concerned, to a considerable degree, with things intangible; it requires often the exhibition of diagnosis by exclusion, — a thing that in itself implies a logical mind and a power of reasoning. The lawyer, trained to reasoning, and the expert physician, educated to observation, can well work hand in hand. The general practitioner, with his knowledge of family traits and tendencies, physical and mental, with his daily observation over, often, quite a period of time, can be and is of considerable assistance to both. The decision thus determined upon should be an important factor in the evidence presented to the judge or to the jury.

I make two points of insistence:

(1) Prophylactic work is in the line of proper sexual hygiene and, above all other times, at the period of puberty — and here, gentlemen, comes your opportunity — if you hold to your families that ideal relationship which Dr. William McClure held to his Scotch friends, if you are welcome to their fireside in times of health and happiness as well as in times of sadness and distress; if you are, in the highest and truest sense, their medical advisers — and I know many of you are — you may, by your watchfulness and your advice, do much to reduce the number of those in the community who are either vicious or the victims of the vicious.

(2) This point of insistency, second in place, but possibly first in importance, is: Responsibility should be fully established before legal punishment is inflicted. The establishment of this fact requires the consideration of medical as well as legal matters, and is often an affair for expert inquiry.

While it has been said that no undisputed definition of responsibility has been legally established, the one which I have indicated to you is the one generally accepted — the power to distinguish between right and wrong in a given case — simple in phraseology, but, as you have perceived, most complex in determination.

THE PRINCIPLE AND LIMITATIONS OF THE HOME MODIFICATION OF MILK.[1]

BY JOHN LOVETT MORSE, A.M., M.D.,
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IT must be admitted, I think, that the only proper and practicable substitute for human breast-milk in the feeding of infants is some modification of cows' milk. The following comparative table of human milk and cows' milk shows along what lines cows' milk must be modified in order to resemble human milk.

	Fat.	Sugar.	Proteids.	Reaction.	Sterility.
Human milk . . .	4.00	7.00	1.50	Alkaline	Sterile
Cows' milk . . .	4.00	4.50	3.85	Acid	Not ster.*

* When obtained by child.

The acidity is easily corrected by the addition of an alkali, preferably lime-water. The entrance of bacteria can to a large extent be prevented by care in obtaining the milk and their toxic action inhibited by sterilization or Pasteurization. The deficiency in sugar is easily made up by the addition of a sufficient amount of milk-sugar. The difficulty comes in the fat and proteids, for, while the percentage of fat is the same in both cases, that of the proteids is much higher in cows' milk. Any dilution of the milk to lower the percentage of proteids must, therefore, affect that of the fat also and render it too low. Proper modification by simple dilution is, therefore, impossible. In some way the percentage of proteids must be diminished while that of the fat is retained unchanged. This is rendered possible by the fact that when milk is separated, either by gravity or by centrifugalization, the sugar and proteids remain nearly equally distributed throughout the mixture while the fat is very unequally divided, being almost entirely contained in a certain small portion. It is upon this principle that the whole process of modification, both in the laboratory and at home, is based.

It has been found that when average cows' milk has been set for six hours that the composition of the upper one-quarter and lower three-quarters is as follows:

	Fat.	Sugar.	Proteids.
Upper one-quarter	10.00	4.50	3.85
Lower three-quarters . . .	0.20	4.50	3.85

It is upon these average figures of the composition of the upper one-quarter and lower three-quarters, obtained from milk after setting six hours, that the formulæ which I am in the habit of using in the home modification of milk are based. It is evident, however, that these figures are not constant but must vary with the composition of the specimen of milk set. No modification of milk based on them, therefore, is absolutely accurate.

In order to obtain the formulæ necessary for the preparation of modified milk at home it is necessary to think and calculate in percentages of fat, sugar and proteids and not in quantities of upper one-quarter, lower three-quarters, sugar and water. The various quantities of the different ingredients of the mixture must not be regarded as the primary factors but merely as the results of the problem. They represent not the ultimate elements of the food, but only the means by which these elements are obtained. In this way only can even approximately accurate results

[1] Read at a meeting of the Clinical Section of the Suffolk District Medical Society, April 20, 1898.

be attained. In fact, the scientific feeding of infants in general is impossible except on the percentage basis of computation.

In calculating any formula for the home modification of milk it is first necessary to determine the percentages of fat, sugar and proteids, the alkalinity and the total amount for twenty-four hours desired. Suppose a twenty-four-ounce mixture with 3½ per cent. of fat, 6½ per cent. of sugar, 1½ per cent. of proteids and of 10 per cent. alkalinity is desired. As already stated the calculation is based on the average composition of the upper one-quarter and lower three-quarters of cows' milk after setting six hours, that is,

	Fat.	Sugar.	Proteids.
Upper one-quarter	10.00	4.50	3.85
Lower three-quarters . . .	0.20	4.50	3.85

The first step is to get the proper amount of fat. This must evidently be obtained from the upper one-quarter. The amount of upper one-quarter required is calculated by the following comparison. — Amount of upper one-quarter wanted : total twenty-four-hour amount :: per cent. fat wanted : per cent. fat in upper one-quarter, that is

$$x : 24 :: 3\tfrac{1}{2} : 10$$
$$x = 8$$

Therefore eight ounces gives the required percentage of fat. This evidently simply amounts to a dilution of the upper one-quarter, in this instance in the proportion of one to two.

In obtaining the proper percentage of fat, however, certain percentages of sugar and proteids have been necessarily acquired also. It is next necessary to determine what these percentages are. As the process thus far has been merely one of dilution it is evident that the proportions of sugar and proteids must vary directly as the proportion of fat. Mathematically expressed — Per cent. of sugar and proteids obtained : per cent. of sugar and proteids in upper one-quarter :: per cent. of fat obtained : per cent. of fat in upper one-quarter ; or per cent. of sugar and proteids obtained : per cent. of sugar and proteids in upper one-quarter :: ounces of upper one-quarter used : total amount in ounces. In this instance the dilution is one to two and the percentages of sugar and proteids are obtained by dividing those of the upper one-quarter by three ; that is, sugar, 1.50 per cent. and proteids, 1.28 per cent. Eight ounces of the upper one-quarter in a twenty-four ounce mixture thus gives the following percentages :

Fat.	Sugar.	Proteids.
3.33	1.50	1.28

This gives practically the desired percentage of proteids also.

The percentage of sugar, however, is still 5 per cent. less than the desired 6½ per cent. This is easily calculated, 5 per cent. of twenty-four ounces being one and one-fifth ounces. This is about equal to seven level teaspoons. The 10 per cent. alkalinity is also easily reckoned, 10 per cent. of twenty-four ounces being two and a half ounces. That amount of lime-water is therefore added. The amount of liquid is still too low, however, as eight ounces of upper one-quarter and two and a half ounces of lime-water only make ten and a half ounces. Hence thirteen and a half ounces of water must be added to make up the total quantity of twenty-four ounces.

	Fat.	Sugar.	Proteids.	Alkalinity.	Quantity.
Upper ¼, 8 ℥	3.33	1.50	1.28		8 ℥
Milk-sugar, 1 1-8 ℥		5.00			
Lime-water, 2½ ℥				10	2½ ℥
Water, 13½ ℥					13½ ℥
	3.33	6.50	1.28	10	24 ℥

The weak point in the method detailed above is very evident, namely, that with milk separated by gravity it is impossible to get a low proteid with a high fat. This is, of course, due to the fact that in any dilution of the upper one-quarter the relation of the percentage of proteids to that of fat must remain a constant one. It is impossible, for example, to make a modified milk by this process containing 4 per cent. of fat and 0.75 per cent. of proteids. For 4 per cent. of fat means practically a one to a one and a half dilution ; that is, dividing the formula for the upper one-quarter by two and a half. This gives a percentage of proteids of 1.54.

This difficulty is overcome in the laboratory, and may be overcome at home, by the use of centrifugalized cream containing a higher percentage of fat. The formula of centrifugalized milk, the cream of which contains 20 per cent. of fat, is as follows —

	Fat.	Sugar.	Proteids.
Cream	20.00	4.00	3.40
Skim	0.10	5.00	4.00 (approximate).

By using cream of this percentage of fat a milk can be prepared containing a percentage of proteids as low as 0.68 in combination with 4 per cent. of fat, the same principle of division being applied.

It is possible, however, with milk separated by gravity to obtain high percentages of proteids in combination with a low percentage of fat, the additional proteids being provided by the lower three-quarters. Suppose, for example, that in the previous formula 2 per cent. of proteids is desired instead of 1.25. Eight ounces of the upper one-quarter will as before give —

Fat.	Sugar.	Proteids.
3.33	1.50	1.28

0.72 per cent. of proteids are still necessary and must be obtained from the lower three-quarters which is practically free from fat. The amount of lower three-quarters required is calculated on the same principle as that for the upper one-quarter ; that is, amount of lower three-quarters wanted : total twenty-four ounce amount : : per cent. of proteids wanted : per cent. of proteids in lower three-quarters, that is,

$$x : 24 :: 0.72 : 3.85$$
$$x = 4\tfrac{1}{2}$$

Therefore four and a half ounces of the lower three-quarters gives the extra amount of proteids required. It also, however, gives an additional amount of sugar, which, calculated as before, amounts to 0.88 per cent. These percentages added to those obtained from the upper one-quarter give —

Fat.	Sugar.	Proteids.
3.33	2.38	2.00

4.12 per cent. of sugar is still lacking. This, calculated as before, is provided by an ounce of milk-sugar. Two and a half ounces of lime-water furnishes the alkalinity and nine ounces of water makes up the desired quantity.

	Fat.	Sugar.	Proteids.	Alkalinity.	Quantity.
Upper ¼, 8 ℥	3.33	1.50	1.28		8 ℥
Lower ¾, 4½ ℥		0.88	0.72		4½ ℥
Milk sugar, 1 ℥		4.12			
Lime-water, 2½ ℥				10	2½ ℥
Water, 9 ℥					9 ℥
	3.33	6.50	2.00	10	24 ℥

This method must, of course, be utilized in the preparation of milks containing moderate or high proteids from centrifugalized milk. Several useful modifications, containing a low percentage of fat in combination with a high percentage of proteids, may be made by the simple dilution of whole milk with the addition of milk-sugar, lime-water and water.

Clinical Department.

A CASE OF HEMORRHAGIC PERICARDITIS DUE TO THE PNEUMOCOCCUS: ASPIRATION; RECOVERY.[1]

BY GEORGE G. SEARS, M.D.,
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S. B., a well-developed Italian laborer, twenty-three years old, was admitted to the City Hospital, June 19, 1897, suffering from acute rheumatism, the left ankle and both wrists being red, swollen, hot and painful. The whole left side of the abdomen was covered with erythematous patches, and numerous blotches of a similar character were also noticed on the back. Except for a soft systolic murmur at the apex, transmitted into the axilla, an accentuated pulmonic second sound and the presence of fine moist râles at the base of the lungs, physical examination was negative. The temperature was 100° F. and the pulse 90, regular and of good volume. Under the use of salicylates, the swelling of the joints rapidly subsided, and on the 23d he was apparently convalescent. Two days later, however, the rheumatic pains and the erythema returned and the temperature rose to 102.2°. To condense the history of the next two weeks, he developed a pneumonia of the left side and a pleurisy with a small effusion in the right. Rough murmurs were heard over the precordium which were indistinguishable in the character of the sounds from those of endocardial origin, but from their variation from day to day in time and position probably arose in the pericardium. The area of precordial dulness gradually increased laterally, until it extended fully two inches to the right of the sternal border and on the left merged into the dulness of the left lung. On July 11th in the presence of a pneumonia on the left side and of a pleurisy on the right, with a high and irregular temperature a pulse-rate between 110 and 120 and respirations between 40 and 56, it was decided to attempt to give some relief to the patient by aspirating the pericardium, which was done in the fourth interspace, about one inch from the right border of the sternum. A hollow needle was introduced and ten ounces of fluid withdrawn, which Dr. Leary reported as containing much blood, numerous polynuclear and mononuclear cells with an occasional endothelial cell, the polynuclear being frequently arranged in clumps. A culture showed a growth of pure pneumococci. Three days later the precordial dulness still extended two inches to the right of the sternum, but the cardiac sounds were more distinct. The temperature continued to run an irregular course with marked morning remissions, but the excursions were not so great. On August 17th it returned to normal and from that time it rarely exceeded 99° in the evening, although once or twice it rose as high as 100°. In the morning it frequently fell to 96.4° or 97°. The fluid in the right chest increased somewhat and on July 30th an unsuccessful attempt at aspiration was made.

The patient gradually improved and was discharged September 14th. The left chest was then clear, but the right still showed a little dulness below the angle of the scapula with diminished respiration and the presence of a friction sound. The area of cardiac dulness remained somewhat increased, and at the apex a very short diastolic as well as a systolic murmur was audible. The latter was transmitted into the back and heard even on the right of the median line.

The presence of blood in a pericardial exudate has been generally credited as being a symptom of very grave import from its frequent association with severe underlying conditions, of which the most common are tuberculosis and cancer. So long as our knowledge of the contents of the pericardial sac was chiefly obtained at the autopsy, such a conclusion was necessary, but with a growing acceptance of the view, which Roberts and West have done much to popularize, that aspiration is a reasonably safe procedure and often of great therapeutic value, considerable evidence is now at hand on which to base an estimate of how far the presence of blood itself should have a determining influence in prognosis. Cases of recovery under such circumstances do not seem to be relatively so rare, as I have been able to find eleven in literature, where the fluid withdrawn was described as varying from bloody to apparently pure blood. Several others have been excluded where death ensued some months later either from the further progress of the original disease, to which the pericarditis was secondary, or as the result of pericardial adhesions.

These eleven cases are not, to be sure, a very large number, and yet they amount to a very considerable proportion of the cases of paracentesis pericardii reported, since they do not greatly exceed a hundred all told, and in several of these it was impossible to ascertain the character of the exudate from an inability to find the original reference. They would also make a very good showing when compared with the number of fatal cases with a hemorrhagic character diagnosed before death, but when dealing with such small numbers the statistical method can lead to no definite conclusions.

Of these eleven cases six occurred during the course of scurvy, five being reported previous to 1854, three were rheumatic and one was associated with exophthalmic goitre. One was apparently idiopathic, occurring in a very alcoholic subject.

The case reported is the only one which I have been able to find where a bacteriological examination was made, nearly all the others occurring in pre-bacteriological days, but the close similarity of the pericardium and pleura make it very probable that further examinations will give positive proof that other bacteria than the tubercle bacillus are capable of producing a hemorrhagic pericarditis as well as a hemorrhagic pleurisy. At all events, these cases raise the question whether Osler's statement that the presence of a bloody exudate on aspiration is decidedly in favor of tuberculosis, may not require a little shading. Even in tubercular cases, where the process is localized, recovery is by no means impossible, if it be proper to speak of a patient as cured, when a patho-

[1] Read at a meeting of the Clinical Section of the Suffolk District Medical Society, April 20, 1898.

logical condition almost of necessity remains, which is liable to produce a chain of symptoms which may terminate in death, since as has already been said, a number of cases are recorded, some of which were hemorrhagic, where the tubercle bacillus was undoubtedly the cause, and yet at the autopsy, several months later, the local process had healed through the obliteration of the sac, the fatal issue having been due either to the further progress of the disease in other organs or to the effects of the pericardial adhesions. These same bacteria are now recognized as the most frequent causes of idiopathic inflammations of the pleura, and from analogy it is probable that they are equally active as factors in idiopathic inflammations of the pericardium, though from the rarity of the latter this is less susceptible of proof. This view is supported by the discovery of their presence by Eichorst in eight cases of pericarditis of spontaneous origin out of twenty-seven, and is unhesitatingly endorsed by him both as to the pericardium and the peritoneum. As a corollary to this the question arises whether, if in tubercular pleurisy, recovery is so frequent as to be practically the rule, it may not also occur when the pericardium is attacked, a question, which in the opinion of the writer deserves an affirmative answer.

The selection of the fourth right space in this case was certainly justified by the result, and while a study of successful cases shows that the fifth space, more frequently the left than the right, was more often chosen than any other, equally successful results were obtained when the needle was inserted in other, occasionally extraordinary, situations. In two cases aspiration was done through the back near the angle of the scapula, while in a case with which the writer was connected, fluid was obtained with the needle introduced below the right costal border nearly in the mammillary line, the accumulation being so great that the diaphragm and liver were greatly displaced downwards.

REPORT OF FIVE CASES OF WOUNDS BY THE MAUSER BULLET, WITH REMARKS.

BY J. H. STEVENS, M.D., BOSTON,
Ex-Surgeon Cuban Army.

THE adoption by the United States Army of the Krag-Jorgensen Rifle, following the adoption in England of the Lee-Metford and in Germany and Spain of the Mauser, has given rise to a great deal of discussion as to the efficiency of these small-calibre rifles. The present war is expected to settle definitely the question as to their possibilities in future campaigns, inasmuch as the United States is concerned. The Mauser is the only one with which I have had any practical experience, and as I have had the opportunity of treating wounds inflicted by this rifle side by side with those made by the older arm, I have ventured to send this report of a few cases taken at large from my notes. They are in no way more remarkable than the average. Perhaps a few remarks or, at least, a general summing-up of my conclusions in regard to this weapon will be apropos.

The Mauser cartridge (Spanish) is a long pencil-shaped cartridge with a bullet jacketed with an alloy of copper, zinc and nickel, and having a calibre of only .295. The initial velocity of the Spanish Mauser is approximately 2,250 feet per second, and their tremendous increase in velocity can be very readily appreciated by comparing it with the 1,300 feet per second velocity of the old Springfield rifle. The advantage in velocity and range combined with a beautifully flat trajectory make the new rifle theoretically, at least, a most destructive and seemingly efficient weapon. The penetrating force of the bullet is also proportionately increased, and I have seen small tree trunks completely perforated by the Mauser.

But the conditions which could suppose several men in the line of a bullet are (to my mind) few in actual battle, and will become even more rare in the battles of the future where massed troops will play a minor part, and where charges in open country will be an impossibility.

Presuming that the object of war is to disable, without necessarily killing or fatally wounding the individual (because a wounded man becomes an incubus upon the army and requires a great amount of attention), then it becomes a question as to whether more men can be disabled by the small-calibre bullet, in view of its much greater range, and its primary effect upon men so wounded as compared to the old-time bullet.

Granting that the new rifle means an increase of wounded men, it would still remain a question as to whether the lessened severity of the wounds would not more than compensate for the increase in numbers. The experience of the Russo-Turkish war (experience which I think has been borne out since) has proven that very few men receive wounds at great distances, and this advantage of range, considering the inaccuracy of the new arm at long distances would be, I think, more theoretical than real.

The experience of the English surgeons has certainly coincided with my own observations, as evidenced by their use of the so-called Dum-dum bullet in the late Mahmoud and Tirah expeditions.

Shock, so potent a factor with the old rifle, is very slight with the new weapon and the stopping force of the bullet (unless cut) is practically *nil*, men even mortally wounded continuing in the fight under the impression that they have received a very slight wound. An advantage to the wounded (if not to the armies engaged) will be the facility with which wounded men will be able to reach the primary dressing-station, as a much greater percentage will be able to walk, especially in cases of wounds to the extremities which form nearly seventy per cent. of all wounds received in battle.

The duty of the medical officers will be greatly simplified instead of increased, and this greater percentage of wounded who will be able to practically take care of themselves, at least for the time, will be a factor which must be taken into account in considering any considerable increase in the working force of the medical corps.

Unless a soldier receives a wound in a portion of the body considered vital and dies at once, his chances of recovery are very good even under the most filthy surgical conditions and where treatment is of the worst. It can be made as a general statement that wounds (ordinarily) by this bullet require very little treatment.

There is little pain, little hemorrhage, the wounds of exit and of entrance are practically the same, there is little inversion or eversion of tissue, they are easily closed, seldom require drainage and the recovery is

extremely rapid once the surgeon has *learned to keep his hands off.*

As to the statements that wounds made under four hundred yards would be of a more serious nature I can only say that the cases which have come under my observation have certainly not borne out this assertion. Wounds made by ricochet bullets are, as can readily be imagined from the shape of the Mauser, of a most horrible character. I can see no advantage in the change from the old to the new style of weapon, and I think that actual service will demonstrate the inefficiency of the arm.

If the end of a bullet be cut to allow of a setting up then you diminish the penetration, and as most wounds are received at comparatively short range, I do not see how any one can claim an advantage for the Mauser. The reader can, however, judge for himself.

CASE I. Lieutenant F. E. Y. G., wounded at Saratoga, in the Province of Camaguay. The ball (Mauser) struck him upon the outer side of the right leg, juncture of the middle and lower third, passing directly through the tibia and leaving only a small round hole at entrance and exit. The ball also passed directly through the body of the horse which he was riding. There was little difference in the wounds of entrance or exit, no inversion or eversion of tissue, slight bleeding and, so far as examinations showed, no splintering of bone. The pain was very slight. The wound was absolutely untreated for five days and subsequently dressed with iodoform gauze. Recovery rapid and complete.

CASE II. A. G., wounded with Mauser. The ball struck him directly over the right knee-joint, perforated, without splintering, the patella, and the wound of exit was one-half inch inside the tendon of the semitendinosus muscle. The wound was dressed with sublimate gauze, and the recovery was good, an almost perfect use of the joint resulting.

CASE III is an even more remarkable case, involving a wound of the right lung. The patient, a private, received his wound June 10, 1898, the bullet (Mauser) entering between the third and fourth ribs and one and one-half to two inches to the right of the sternum, ranging slightly downward owing to his position in the saddle, and having its exit one-half inch from the interior angle of the scapula. This case was not seen until the fourth day. He had covered the wounds of entrance and of exit with pieces of cloth, torn from his jacket. There was slight cough. Bloody sputum was very slight, he said, after the first two days. His temperature was normal and he was walking about. At no time during his convalescence was he confined to the recumbent position, and he made an uninterrupted recovery.

CASE IV. Private of the Camaguay Regiment. Wounded in the side of the neck just above and to the right of the junction of the clavicle and sternum by a Mauser bullet, presumably a ricochet. The wound was of a most horrible character, the muscular tissue of the right side of the neck being almost entirely carried away, and the œsophagus and trachea exposed and torn across. The patient bled to death before anything could be done for his relief.

CASE V. Will serve as a contrast case, and is only a fair illustration of the difference in effect between the Mauser and the old lead bullet. E. F., private, was wounded by a Remington copper-covered bullet. The ball struck him just above the elbow of right arm, smashing and splintering the humerus and tearing the muscular tissue in a most terrible manner. Amputation. Recovery.

The Spanish regular infantry being armed almost, if not entirely, with the Mauser, while the scouting parties, composed for the most part of volunteers, were armed with the Remington and Winchester, gave me an opportunity of making many comparisons between the two kinds of wounds. No man struck by the old lead bullet was ever known to complain of lack of stopping force.

The cases which I have given above are selected at random from among my cases, and are certainly fair samples by which to judge the rest. I hope at some near date in the future to report more fully upon these cases, especially several of remarkable abdominal wounds.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR meeting, Wednesday, April 20, 1898, DR. W. F. WHITNEY in the chair.

DR. A. K. STONE read a paper entitled

ALBUMINURIA.[1]

DR. OGDEN: I have been very much interested in Dr. Stone's report of the investigation which he has made. I agree with him perfectly in the statement that the presence of albumin is only a part of the picture of the urine, that is, it is important to have the twenty-four-hour quantity if possible, to know the specific gravity, the total amount of urea, the presence or absence of albumin, the presence or absence of sugar and the characteristics of the sediment. Albuminuria in itself is really of very little importance excepting that it is, as Dr. Stone said, a danger-flag. Every albuminous urine, therefore, should have a thorough examination, in order to ascertain, if possible, the true significance of this abnormal constituent. It usually shows the existence of a pathological renal condition, or the presence of pathological non-renal elements.

I consider the nitric-acid test and the heat test for albumin by all means the most valuable. The tests by means of tri-chloracetic acid, and Millard's reagent, as well as by any other reagents are really too delicate, for they not only precipitate the common forms of albumin, but precipitate also peptons, as well as certain other substances. Some of these reagents, notably Millard's, give reactions for albumin in nearly every urine — normal or pathological.

The subject of albuminuria would be a perfectly simple one if we had to deal only with serum albumin, but the presence of so many other proteids in the urine often makes the subject very confusing. If the urine contains albumose, it is precipitated, together with any serum albumin that may be present, by nitric acid, but is usually not differentiated from the albumin, with certainty, until the heat test is applied, when it is found that a dense white precipitate forms by gentle heat, and re-dissolves on boiling, leaving only the pre-

[1] See page 235 of the Journal.

cipitate of albumin in the boiling-hot urine. Further confirmatory tests are then necessary.

I was rather surprised to find that the percentage of albuminous urine was so low in Dr. Stone's series. The cases which I have followed at the City Hospital have shown a higher percentage of albuminous urines, but, of course, I dealt only with the cases which are in the hospital and which were probably ailing to a greater extent than the out-patients followed by Dr. Stone. Without knowing the actual figures, I should say that the percentage would range above 50, where the albumin was present in the slightest possible trace or more. Usually, in those cases, the albumin was found to be due to a small amount of blood accompanying a vaginal discharge, and without the presence of organized renal elements.

There appears to be a distinct class of cases in which the albuminuria seems to be unexplainable, that is, the cause is unexplainable. Take those such as Dr. Stone has referred to in the experience of the life insurance examiner: people apparently perfectly well, but the presence of albumin and the presence of organized elements in the sediment. Very often these cases on physical examination show absolutely nothing. Such cases may lead to the chronic form of nephritis in later years, or they may entirely clear up. I think that it is perfectly just that the insurance companies should eliminate such cases because they are certainly great risks.

DR. TAYLOR: Dr. Stone has made no particular mention of temporary albuminuria occurring in the course of violent nervous affections. It has long been recognized that albuminuria may occur temporarily, notably in epileptic seizures in which the attacks succeed each other with great rapidity. I was interested not long since in observing the case of a young boy, who, so far as I know, had no renal disturbance, who suddenly had a great exacerbation of his epilepsy so that when I saw him he was having eight seizures in a night. The examination of the urine taken during the night, and after rising in the morning gave rather a large amount of albumin. No casts were found. During the day I examined the urine again when he was free from attacks, and found that the albumin had entirely disappeared.

This matter is undoubtedly of great importance not only in regard to albumin, but also in regard to other substances that may be found in the urine, on account of the possible confusion of cause and effect. It should, I think, be recognized by those who are working on the auto-intoxications, and the general intoxications of the nervous system that it is very possible in many of these cases to confuse the cause with the effect. It is always possible that the nervous disturbance itself may give rise to certain products, later excreted by the urine, rather than that the products excreted by the urine are the cause of the general disturbance. The general feeling of writers has been that it is fair to assume when certain abnormal products are found in the urine that they are probably the cause of nervous disturbances which are associated with such pathological condition. The converse is no doubt very frequently the case, namely, that a primary nervous disturbance may give rise to secondary disturbances which manifest themselves by such abnormal constituents in the urine, or of other excretions of the body.

DR. OGDEN: I should like to ask Dr. Stone how much albumin he found in the 23 per cent. of cases?

DR. STONE: Usually a well-marked trace.

DR. OGDEN: Then you included those in which there were the slightest possible traces?

DR. STONE: Yes.

DR. J. L. MORSE read a paper on

THE PRINCIPLES AND LIMITATIONS OF HOME MODIFICATIONS OF MILK.[1]

DR. WHITNEY: Is there any simple fat that can be added in order to bring the percentage up to that required?

DR. MORSE: I do not think there is anything that takes the place of cows' milk. The thing that comes nearest to it, I think, is cod-liver oil.

DR. G. B. SEARS read a paper on

HEMORRHAGIC PERICARDITIS.[2]

DR. WHITNEY: Was the blood so well and intimately mixed with the fluid that there was no question that it was there before the introduction of the needle?

DR. SEARS: Yes, it was thoroughly mixed with the fluid.

TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

HELD IN PRINCETON, N. J., MAY 31 AND JUNE 1, AND IN NEW YORK CITY, JUNE 2, 1898.

THE Address was delivered by the President, DR. J. NEVINS HYDE, of Chicago. He spoke of the importance of auto-intoxications in cutaneous diseases, and stated that uric acid is now recognized as the eventual product of nuclein rather than albumin. The increase of leucocytes is often in proportion to the sub-oxidation production. It could not be denied that some of the rosaceas and acnes may be due to xanthin poisoning. A favorable sign of the times was the holding of an international leprosy conference during the past year. That the bacillus of lepra should be accepted as the essential virus of the disease was to be expected although it has not met the final scientific test. It was emphasized in this conference that the buccal and nasal secretions are infectious, that the isolation of lepers is best for the community and that serum therapy had not yielded encouraging results. The charges made by humanitarians of cruelty in the segregation of lepers had been proved to be without any weight whatever. In some of the settlements the lepers enjoy a life which would be impracticable outside, save for persons of great wealth. Persons suffering from certain forms of leprosy, and living outside of leper settlements, feel most keenly their social ostracism.

AMERICAN DERMATOLOGICAL STATISTICS.

Dr. Hyde said that as a result of the efforts of the Association to collect statistics of cutaneous affections during the past twenty-one years, he was now able to report that a total of more than 300,000 patients so afflicted had been examined and treated. Of this very large number more than 84,000 had eczema, more than 33,000 had syphilis, over 25,000 had acne, and more than 10,000 were affected by diseases of the skin produced by vegetable parasites. There were but three cases of actinomycosis of the skin, and two of sclerema neonatorum. These statistics were compared

[1] See page 291 of the Journal.
[2] See page 293 of the Journal.

with those from abroad, and certain differences were pointed out.

HYDROA VACCINIFORME?

Dr. J. C. White, of Boston, presented a series of cases and photographs illustrating this affection. He said that the disease usually begins between the first and third years of life, and in the spring and summer after exposure to the sun. It is almost exclusively seen in boys. On the face, hands and other parts are to be seen small and large vesicles coalescing to make bullæ, and giving a picture somewhat resembling vaccinia. His own cases were characterized by the process being less active during the warm season, by the extensive distribution of the cutaneous lesions, by the magnitude of the subsequent cicatrices and by the great disfigurement. These extraordinary cases differed very markedly from other known forms of dermatoses. It seemed to him that the more these rare forms of bullous disease are studied the harder it is to sharply define them.

Dr. J. C. Johnston said that at the present time observations regarding the presence of eosinophilia in bullous affections seemed to be of no value whatever, though, of course, in the future they might acquire a new significance.

Dr. Hardaway referred to a case of supposed hydroa vacciniforme which he had seen in the daughter of a physician. The lesions appeared to be wholly uninfluenced by the seasons, or by anything, and they left considerable scarring.

Dr. T. C. Gilchrist, of Baltimore, agreed with Dr. Johnston that the blood examinations served simply to confuse the clinical observer.

Dr. L. A. Duhring said that he had not seen, either in Philadelphia or in other cities, scarcely a typical case of this affection. Most of the typical cases reported had been observed chiefly in the summer. Clinically he had not observed any great similarity between hydroa vacciniforme and dermatitis herpetiformis; in the former the diagnosis was difficult; in the latter it was exceedingly easy.

Dr. J. T. Bowen, of Boston, said that microscopical examination of the lesions would reveal a distinct necrosis of the fibrous layer. As he had seen at least four or five typical cases in the past few years, the disease could not be as rare in Boston as in Philadelphia. Dr. Bowen described a case of congenital bullous dermatitis that he had seen, which bore considerable resemblance to hydroa vacciniforme. The patient was a girl, and the bullæ appeared chiefly around the elbows, wrists and knees.

Dr. White, in closing the discussion, said that this disease was protean in its manifestations and exceedingly puzzling from the standpoint of diagnosis. Those who formerly called the disease "estivale" now admit that it may occur at other seasons, even in the same patient.

A RECURRENT BULLOUS ERUPTION LIMITED TO CERTAIN AREAS, SUPPOSED TO BE DERMATITIS HERPETIFORMIS.

Dr. W. T. Corlett, of Cleveland, reported such a case. The patient, an adult, had an itching eruption on the inner surface of the thighs and ulnar surface of the forearms. This man had enjoyed robust health up to the war of 1861–65. The eruption began in July, 1894, and the present attack was the seventh. Examination showed slightly inflamed areas of skin on the ulnar regions of the forearms and inner aspects of the thighs corresponding to the distribution of the internal, cutaneous obturator and other nerves. The lesions consisted of papules, small tubercles, vesicles, a few pustules and numerous small vesicles. The important features of the case were: (1) The multiform character of the lesion, with a preponderance of the small bullæ; (2) intense itching; (3) limitation to certain areas; (4) recurrence, and (5) complete immunity for upwards of seven months.

Dr. Duhring said that he could not recognise much resemblance to dermatitis herpetiformis; the case was rather one of those rare forms of bullous disease which are difficult to classify.

Dr. J. Zeisler, of Chicago, said that he considered it easy now to diagnose positively dermatitis herpetiformis. In reaching such a diagnosis it is important to note the favored location and the preponderance of bullous and urticarial lesions. He had never seen a case of this kind in which the inner surface of the thighs was affected. The lesions were found chiefly on the back, hips and knee-pits.

Dr. J. A. Fordyce, of New York, thought it probable that in the case reported the lesions might be dependent upon a peripheral neuritis or some central trouble.

Dr. White objected to using a narrow definition for dermatitis herpetiformis in the present state of our knowledge, and hence preferred the term "multiformis." We were not justified in excluding Dr. Corlett's case from this category.

Dr. Stelwagon concurred in this view.

TROPHIC DERMATOSES FOLLOWING FRACTURES.

Dr. J. Zeisler read a paper on this subject. He said that as it had been claimed as long ago as 1832 that the toe-nails begin to grow at the time of the consolidation of a fracture, he determined to ascertain the truth of this assertion by observation in his own case, having received a fracture in 1896. He found that the nails on the fractured limb did not grow at all for six weeks, and that it was about ten weeks before their free border could be felt. He had never observed this at other times. But in this case the growth of the nails was not a sign that consolidation of the broken fragments of bone had taken place, for to this day the fracture remains ununited. It is probable that the phenomenon is to be explained by the impaired nutrition of the limb, chiefly due to the application of bandages and other dressings. In April, 1897, there appeared on the right sole a crop of small vesicles, without special grouping, and accompanied by intense itching.

Dr. E. B. Bronson said that it was well known that eczema is liable to affect a limb which has been the seat of a fracture, that its configuration is unusual and that the disease proves obstinate under treatment.

Dr. F. J. Shepherd confirmed the remarks of the previous speaker, and described a case of ununited fracture of the humerus in which herpetic lesions developed along the course of the musculo-spiral nerve, and disappeared after the nerve had been released from the pressure of the fragments. Bullæ, he said, are not at all uncommon after fractures, and often appear at distant points.

Dr. Duhring expressed the opinion that changes in the nails were more common after shock and various

injuries than was generally supposed. He had studied many of these cases, and was inclined to group them under the general head, dermatitis neuropathica, using adjectives, such as "bullosa" and "vesiculosa" to describe the special conditions. Those lesions are directly dependent upon nutritive changes, and do not necessarily arise from injuries.

DR. HARTZELL remarked that having fractured the metacarpal bone of the right hand connected with the little finger, he noted that for three or four weeks after the injury the nails on that hand did not grow.

TWO CASES OF MELANO-CARCINOMA, PRIMARY IN THE SKIN, ONE IN A NEGRO; WITH SOME OBSERVATIONS ON THE PATHOLOGY OF MOLES.

DR. T. C. GILCHRIST presented a communication having this title. The negro was much emaciated, and there were a thousand nodules on the body and numerous nodules in the liver, and probably elsewhere, yet curiously enough there were no enlarged lymphatic glands. A portion of one metastatic nodule was teased out and injected into the external jugular vein of a dog. After two months, during which time the animal had apparently thriven on the treatment, he was killed, but no pigment or other abnormal change was found in the lungs. The cultures from the sterilized portions of the nodules were negative. The smallest metastasis showed a nodule deposited in the subcutaneous tissue, consisting of epitheloid cells. The pigment was not very noticeable in the first metastases. The second case occurred in a physician, twenty-seven years of age. A small mole was first noticed on the left cheek seven years ago. It very gradually increased in size, and after a scratch began to grow quite rapidly. It was excised, and the sections showed distinct melano-carcinoma of a mole.

Dr. Gilchrist said that, according to the leading pathologists, moles are incomplete sarcomata — growths from the wall of either the lymphatics or the blood-vessels. Unna stands alone in saying that the structure of a mole is derived from the epidermis, and, therefore, is of epithelial origin. The speaker said that he had excised a pigmented mole from the abdomen of a child, and several also from adults. The mole from the child showed nests of cells in the epidermis. His own observations, therefore, confirmed the view held by Unna. From this it follows that since the cells of the tissue forming the mole are of epidermal origin, the malignant growth of such a tissue must be carcinoma. In this view Dr. Welch concurs. It must be borne in mind, then, that the malignant growth of a mole is not a melanotic sarcoma, but a carcinoma. Dr. Abel has recently shown that the pigment in the negro is a very complex body, and that a granule remains after isolating the pigment. This granule contains iron. The pigment when separated is found to be free from iron. The conclusion is, that the pigment in melanotic growths and in the negro's skin is not derived from the blood but alterations in the protoplasm itself. Certain Italian observers claim that the bodies found in cancer are blastomyces and are allied to the yeast fungus, but these bodies are not constantly present, and they are found in benign growth and in many other lesions of the skin. Moreover, no pure culture has been obtained from cancer, and attempts to reproduce undoubted cancer from the supposed parasite have so far proved unsuccessful.

DR. DUHRING said that there seemed to be good reasons for believing that moles are of epidermal origin, and hence he was surprised that so many pathologists took a different view.

DR. HARTZELL accepted Dr. Gilchrist's view, and spoke of the extreme malignancy of these melanotic growths.

DR. STELWAGON said that he had faithfully tried the effect of treating these cases by the hypodermic injection of arsenic, but with an entirely negative result.

DR. WHITE expressed the opinion that it would take more than a few cases to successfully oppose the view that it is not possible for a mole to subsequently give rise to pigmented sarcoma.

DR. FORDYCE said that he had given some attention to the study of excised moles, and while he believed that the majority of pigmented tumors originate from the lowermost cells of the epidermis, in certain cases there appeared to be a mixed tumor. If this observation were correct, it would reconcile the conflicting opinions of the pathologists.

DR. JOHNSTON agreed with Dr. Fordyce that a sarcomatous mole might develop from the mesoderm, just as a carcinomatous mole might arise from the ectoderm.

DR. A. R. ROBINSON, of New York, was inclined to agree with Unna's view of the origin of the pigmented form, but he said he was under the impression that white moles are derived from the lymphatic system, and present no evidence of epithelial structure.

DR. HYDE said that the word sarcoma had been used quite indefinitely in the past, so that it was probable that the pathologists were in error, not in their recognition of the nature of pigmented moles, but in their interpretation of the phenomena which they describe as sarcomatous.

DR. GILCHRIST, in closing the discussion, touched on the question of prognosis. He stated that early and complete excision before the occurrence of metastasis should effect a cure. He could not understand how there could be a mixed tumor, as all the cells in a mole are of epidermal origin.

(*To be continued.*)

Recent Literature.

Diabetes Mellitus and its Treatment. By R. T. WILLIAMSON, M.D. (London), M.R.C.P. New York: The Macmillan Company. 1898.

Treatises on Diabetes Mellitus are not so common with us as in Germany and a new book on this subject is sure of a welcome. The present volume of Williamson's is an octavo of 417 pages, printed on good paper, with eighteen illustrations.

The book opens with an entertaining historical *résumé*. It is a noticable fact that the early work on diabetes was English and the more recent work German. Then follows a chapter on Sugar Tests which occupies more than one-tenth of the whole book. Such matter properly belongs in a work on Clinical Diagnosis or Physiological Chemistry, and even the excellent discussion of the Phenylhydrazine test and the valuable suggestion as to the combination of the Fehling's, Phenylhydrazine and Fermentation tests for the deter-

mination of small traces of sugar cannot justify a length of forty-four pages.

The chapters on Physiological Considerations and Experimental Diabetes and Glycosuria contain so many references to the recent literature that all can read them with profit. We miss the discussion of the facts presented, because we expect the author to pass upon them a discriminating judgment. As it is the reader feels too often that he has been looking over notes gathered by the writer's assistant.

The presentation of the facts on Experimental Pancreatic Diabetes is much more readable, though the author makes but little comment. Alimentary Glycosuria receives considerable attention and the literature is well up to date, but the author has evidently had but little experience in the 100-gramme glucose test for the determination of the power of assimilation. Since the hope of treatment in diabetes lies in discovering early cases and those with a tendency to the disease, this test should be more freely used. It certainly is remarkable that even in advanced disease of the liver the power of assimilation of sugar is not lowered. Phosphorus poisoning is an exception, but perhaps this is due to the combined effect of the poison on the liver and muscles.

The chapters on Etiology and Etiological Relations, Symptomatology and Symptoms, Complications, and Pathological Changes in Connection with the Various Systems form the best part of the book. The author's cases show the most careful study. The deductions drawn from the statistics are most carefully formulated and inspire great confidence. It is beyond the scope of this review to record these interesting data and mention can be made only of the prevalence of diabetes in India and the remarkable immunity enjoyed by the Mohammedans. Two hundred and fifty cases are quoted from Bose. Of these only two were Mohammedans, seventeen were Europeans and two hundred and thirty-one Hindus.

The author divides his cases into two types, the mild and the severe, and calls attention to the fact that the former may develop into the latter. Naunyn[1] has put especial emphasis on this point from the side of treatment.

Gout and diabetes have had much less intimate connection in the author's experience than American and Continental writers have been wont to believe. This is striking and suggestive as well. Gout and England are so closely associated in the American medical mind that we naturally expect an English writer to lay much stress on the coexistence or alternation of the two affections.

Attention is called to the possibility of the absence of sugar in the morning urine and there is given at some length a list of other circumstances under which the sugar may disappear — facts not so universally known. The author's ideas on acetone and diacetic acid are in accord with those expressed in the most recent literature. He does not appear to appreciate, however, that much more acetone is excreted by the breath than in the urine. The connection between acetone and constipation in diabetics is pointed out and furnishes an obvious therapeutic hint. Williamson has added to the tests for diabetes by describing a ready method for the detection of the excess of sugar in the blood. The method, like Bremer's, is based on a change in the color of one of the aniline dyes.

[1] Naunyn. Der Diabetes Mellitus, 1898, p. 267.

The study of the Pathological Changes is very comprehensive. It seems remarkable that only six out of ninety-two cases showed a dilatation of the stomach and that, as Williamson says (page 204), "dyspeptic individuals often lose all their dyspeptic troubles after the onset of diabetes."

The account of the changes occurring in the nervous system is particularly thorough, especially that portion devoted to the patellar reflexes.

The chapter on Treatment is disappointing. The main ideas are excellent, but the basis of all treatment, the value of the various food-stuffs, is not adequately considered. The author does not record a single metabolism experiment of his own, and furthermore, gives but slight mention to the work of others. To no disease has the metabolism experiment contributed more than to diabetes, and it is a serious failure that in a special work on this disorder the subject should receive such scant attention. The old idea in the treatment of diabetes was a negative one, — how little sugar can we allow our patient; the new idea is positive, — not how little sugar is to be allowed, but how much fat is to be given. And it is only by constantly bearing this in mind, as well as the fact that every gramme of fat is the equivalent of more than twice that amount of proteid or carbohydrate matter that we can hope to successfully cope with this malady. The superficial way in which the subject of diet is approached is shown in the following statement, page 335: "Buttermilk contains less sugar than ordinary milk. . . . It is, therefore, a little more suitable than ordinary milk." The author's own tables show that there is but about 10 grammes less sugar in a litre of buttermilk than in ordinary milk. To save giving this extra 10 grammes of sugar, the author sacrifices some 20 to 30 grammes of fat, the equivalent of 180–270 calories. In a modern treatise on diabetes such a recommendation is inexcusable.

That "wine" (page 364) "is a drink and not a food" can by no means be so easily disposed of, as the question is still debatable. Certainly the statement (page 366) that the effects of music are worthy of a trial, can do no harm, but to say that (page 391) "Brewer's yeast also appears worthy of a trial" might be the cause in some unhappy patient of that "blown up" feeling recorded by Watson as resulting from its use over half a century ago.

We are glad to see that proper caution is given against changing the diet too suddenly in either direction and that the necessity of giving carbohydrates when the ferric chloride reaction is strong is made prominent. There is no question as to the value of the following (page 321): "A weekly or monthly record of the patient's weight is perhaps more important in severe cases of diabetes than the daily record of the amount of sugar excreted."

The Parisian Pasteur Monument. — The design for the monument is completed, and it represents Pasteur in antique costume, and sitting near him is a young woman showing her healed daughter, while Death shrinks into the background. There are also to be bas-reliefs showing an ox, supposed to have been saved from anthrax; a vine-grower picking grapes, free, it is to be supposed, from the phylloxera, and a shepherd caressing his antirabic dog. — *Medical Press.*

THE BOSTON

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THURSDAY, SEPTEMBER 22, 1898.

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ASSOCIATION CENTRES.

FLECHSIG'S views upon the localization of mental processes in the brain brought forward in his address[1] at Leipsig in 1894 and in subsequent articles[2] continue to attract much attention and criticism. He claims that psychical phenomena are functions of the body, more especially of the brain, the cortex of which is alone concerned in consciousness. Certain ideas (visual, auditory, etc.) have a definite localization. He reviews the history of the theories of cerebral localization. The study of the localization theories is aided by a study of the development of the brain at the period of fetal life, in which various tracts develop. The sensory tracts develop at different periods (that of hearing the latest) from the periphery to the cortex, then tracts from the sensory cortical centres to other regions form later. There are four great centres — visual, auditory, olfactory and sensori-motor. These occupy about one-third of the surface of the brain. The other two-thirds of the surface of the brain have other significance. These four sensory centres are developed at birth, the other portions are undeveloped for a month after birth. These other parts are more concerned with the psychical processes, and he regards them as the three great association centres. They are the posterior, involving most of the temporal and parietal lobes; the anterior, involving the frontal lobe, and the middle, involving the island of Reil. The first is especially developed in certain intellectual men. The second is more involved in personal consciousness. The organic sensations are localized in part or exclusively in the lower centres, not in the cortex. The boundary of the visual sphere in man is alone accurately defined, the limits of the auditory and tactile spheres are uncertain. The posterior and anterior associations have many fibres going to the corpus callosum, the middle centre very few. Insanity is a disease of association and especially of these centres. The first association centre comprises the connections between the visual, auditory and sensory centres; the second between the olfactory and sensori-motor, and the third between the auditory, olfactory and sensori-motor. If the first centre be diseased, there is difficulty in recognizing things seen and felt in the external world. If the second be diseased on both sides the idea of personality is disturbed. The first is associated with all the processes of understanding language; the second with the process of expressing language and directing personal motives and acts. Regarding the sensory condition, he has studied the development of certain tracts in the cord and brain, the conduction of tactile impressions from the posterior spinal roots through the pons and internal capsule to the cortex, in part to the cortex of the limbic lobe and in part to the Rolandic region, but lesions in the association centres may cause an apparent loss of sensibility, as in soul-blindness, soul-deafness and certain forms of aphasia, which is due more to a disturbance of association than to a real sensory loss. The various forms of mental trouble may be due to varying localization of the morbid process. Psychiatry must rest on anatomy, physiology and chemistry.

These views of Flechsig have by no means met with universal approval. Sachs[3] considers his work a series of hypotheses addressed to the laity, not a setting forth of careful investigations to support his theories. He questions the correctness of his anatomical data. We cannot trace the fibres in the brain from one end to the other directly, but we can only infer their course. They cross and bend and do not lie in one plane. He questions the correctness of Flechsig's statements about certain fibre tracts in the infant's brain, but, if Flechsig be right, it only proves that at the age of three or four months certain regions only have corona radiata fibres. There is no proof that other corona radiata fibres may not develop later, since, as Flechsig says, the corona radiata and the association fibres are so confused in the adult brain as not to be differentiated. Secondary degenerations in the brain may be shown positively by Marchi's method, negatively by the Pal-Weigert method. A lesion to cause such degeneration must not be so large as to destroy the underlying parts but be only cortical and also rather fresh. He gives studies of several brains with secondary degenerations, and proves that Vicq d'Azyr's layer exists everywhere in the brain, that there is no difference in its appearance in the outer visual centre and in the so-called association centre in the parietal or temporal region. The corona radiata fibres of the projection system are shown to go to all parts of the cortex and no part serves exclusively for association. Of course the four sensory centres exist and are generally recognized, but there is no proof that the rest of the cortex is especially an understanding centre.

[1] Gehirn and Seele, 2d Aufl., Leipsig, 1896.
[2] Die Localization der geistigen Vorgänge, Leipsig, 1896. Die Grenzen geistigen Gesundheit und Krankheit, Leipsig, 1896.
[3] Monatsschrift für Psych. und Neurol., April, 1897.

Nissl [4] also questions whether the psychiatrist should be a brain anatomist, and asks whether there is any connection between the normal structure of the cortex and mental disease. The cortex is, of course, the part involved in such disease. The localization of cerebral functions has nothing to do, however, with the anatomy of the cortex except in its gross topography. The anatomy of the cortex itself has been much neglected, especially by psychiatrists who try also to be anatomists. All the advances in brain anatomy, especially in the anatomy of the brains of lower animals and studies of fibre tracts, have not advanced psychiatry materially. Clinical study and not anatomy is the essential for the psychiatrist. Flechsig thinks anatomy the beginning and end of clinical psychiatry, but Nissl agrees with Sachs that Flechsig's psychology and psychiatry are so superficial and obscure they are not worth considering. Flechsig reports no case in full and does not say how much material he has or on what he bases his views; he says nothing of the nature of his diseases; he does not even say if the association centres are involved in both hemispheres. His views as to the functions of the anterior association centres are based not on a study of clinical cases of lesions in these regions but on supposed anatomical connections with the olfactory and sensori-motor centres which Nissl pronounces the baldest kind of dogmatism in speculative anatomy. Flechsig utters various commonplaces about general paralysis, but he does not give any proof that the clinical differences of general paralysis are based on different localizations. Flechsig says that clinical experience gives countless cases of his associated centres, but he does not cite one case. He does not touch upon the fine anatomy of the cortex itself, in the study of cells, but studies chiefly sub-cortical tracts, and yet cell changes are probably the chief changes in psychiatry. There is no proof that the association fibres, some of which have long been known as the corpus callosum, have anything to do with association.

The first task of the psychiatrist is a scientific knowledge of insanity. He need not undertake anatomical any more than physiological investigation, although he should know the results of research. The pathology of the cortex, however, is important, and forms of insanity should be referred to definite forms of disease of the cortex; that is the task of the pathological anatomy of cortical diseases. For this we lack at present a detailed knowledge of the normal structure of the cortex. For this we need also the newer technique, which is now sufficient. This, however, is of no use unless clinical psychiatry makes for greater advances than it has yet done. The most accurate knowledge of the structure and pathological changes in the cortex need definite clinical knowledge to interpret them. It is hard to make a thorough examination of the brain cortex and impossible to study fully a long series of cases so as to get a series of pathological types from which to derive different forms of insanity. The clinician must give a series of perfectly clear clinical types to point out the field for pathological investigation. Clinical study must open the way for pathology. The task of pathology is to refer the form of insanity to a definite form of disease of the cortex, it cannot explain the nature of different forms of insanity. Clinical psychiatry must define the forms, which it has not yet done. For instance, we do not know whether hebephrenia and katatonia are two diseases or two manifestations of one morbid process.

[4] Monatsschrift für Psych. und Neurol., February, 1898.

WHAT MODERN MILITARY HYGIENE CAN ACCOMPLISH.

THE editor of the *New York Medical Journal* comments as follows on the lessons to be learned from the success of Sir Herbert Kitchener's Soudan expedition:

"The recent splendid achievement of Sir Herbert Kitchener in the Soudan shows what can be done by a military scientist. Here was a large force operating in a desert country as evil in one way as was Cuba in another, landed with practically no casualties or sickness at the fighting point; and fierce as the fighting undoubtedly was, the British loss was insignificant, while that of the Arabs was enormous. Moreover, in the midst of the desert the medical arrangements worked to perfection. Why? Because Sir Herbert Kitchener and his staff knew that questions of camp sanitation, personal hygiene, and care of his men, even such details as investigating the condition of their shoes, the proper time to rest, the safe amount of marching, the need of carriers and attendants, etc., are as much a part of the soldier's training and duty as personal courage, discipline and tactical skill on the field of battle."

The completeness of the medical arrangements for this expedition, which are described in recent issues of the *Lancet*, is most admirable, and shows what can be done by a well trained and organized service, dealing with a force of trained soldiers, which is well within the limits for which it can adequately provide.

"For a British army general hospital at the base — for example, one intended to accommodate five hundred patients — the allowance, the *Journal* is informed, is as follows: A deputy surgeon-general in command, with a surgeon-major as secretary, eighteen other medical officers, a quartermaster, eleven nursing sisters, three sergeants-major, thirteen staff and other sergeants, a bugler, twelve corporals, ninety-four privates, and twenty-five batmen, or soldier servants. In other words, there is a force of twenty medical officers, a hundred and forty-nine non-commissioned officers and men, and eleven women nurses to take care of five hundred patients, and that, too, ordinarily under conditions far less taxing to the force than those that have necessarily prevailed at Camp Wikoff. The responsibility for the discrepancy between such an array and ours does not lie with the surgeon-general of the army or with the system on which the medical service of the army is organized, in so far as its organization is not hampered by legislative restrictions. It lies with the people. Let them make it plain to their representatives in Congress that at last they

realize the niggardliness with which the medical corps of the army has been treated, and are resolved that the mistake shall be remedied."

This sensible view of the reason for the medical failures in our recent Cuban campaign agrees so exactly, as noted by the editor, with those expressed in our editorial of the first instant, that we are glad to quote them.

The sooner the public can be brought to realize that the responsibility for the lack of provision for our soldiers lies upon Congress, and through Congress upon the people themselves, the sooner will legislative provision be made which will render such deficiencies impossible in the future.

MEDICAL NOTES.

NEW DIRECTOR OF THE MUSÉE DUPUYTREN. — M. Pilliet has been appointed Director of the Musée Dupuytren, which contains the anatomical collections of the medical faculty at Paris.

A DOCTOR'S DEGREE FOR A WOMAN. — The University of Genoa has given its M.D. to Miss E. Bonomi, which is said to be the first time the degree has been given to a woman by an Italian university.

THE HUMAN BRAIN. — A German biologist has calculated that the human brain contains 300,000,000 nerve-cells, 5,000,000 of which die and are succeeded by new ones every day. At this rate, assuming the correctness of the German's guess, we get an entirely new brain every sixty days.

SMALL-POX AT JOHANNESBURG. — According to the *Medical Press* the spread of small-pox at Johannesburg, South Africa, is reported to be causing much anxiety, and the presence of a large proportion of unvaccinated and therefore unprotected foreigners renders it exceedingly difficult to circumscribe its ravages. The last news to hand is that the Town Council is at loggerheads with the Small-pox Committee, in its endeavor to secure the sanitary management of the town.

GOLF FOR MEDICAL MEN. — According to the *Medical Press* golf is undoubtedly the pastime, *par excellence*, for medical men. No one, for example, who has not experienced it can appreciate the delightful *abandon* which it is possible to attain upon the links while playing a round. All the petty annoyances of practice and the anxieties of troublesome cases vanish under the soothing influence of the drives, the approach shots and the successful long putts. Golf links also have often proved a favorable medium for the formation of friendships, and anything which tends to foster this desirable feature among professional men is deserving of encouragement.

GENERAL WOOD'S SANITARY WORK. — The city of Santiago, long known as a breeder of pestilence and one of the dirtiest and most unhealthy places in dirty and unhealthy Cuba, has been in American hands only about two months, and is now in a condition of cleanliness that New York might almost have envied a few years ago. Under the system introduced by General Wood, who, it may be remembered, is a physician, Santiago is divided into five sections, each one under the general supervision of a medical man, who has under him inspectors of sewers, streets, houses, and dispensaries, and a number of street cleaners. Five hundred cubic yards of refuse are burned daily, disinfectants are distributed wherever they are needed, and a heavy fine is imposed for uncleanliness or for any failure to report unhealthful conditions and deaths. The results are shown in a decrease in the death-rate within a month from an average of seventy to one of twenty a day. Among the troops the principal diseases are typhoid, malarial, and yellow fevers, and dysentery. The cases of yellow fever, several of which have been among the so-called immunes, are few in number and the disease is of a very mild type. The mortality from malaria or dysentery is much greater than that from yellow fever. Now that the Spanish troops have all left for Spain, it is hoped that yellow fever can be made still less dangerous through the continuance of Dr. Leonard Wood's good work. — *Medical Record.*

BOSTON AND NEW ENGLAND.

DEATH OF A CENTENARIAN. — Mrs. Sarah McNeil, said to have been one hundred years old, died at East Boston, September 11th.

ARRIVAL OF "BAY STATE" AT PONCE. — It is announced that the hospital ship *Bay State* has arrived at Ponce, Porto Rico, after a somewhat stormy passage, and that she will remain there a week before beginning the return trip with sick soldiers.

ANOTHER HONORARY DEGREE FOR DR. BOWDITCH. — In addition to the degree of LL.D. from Edinburgh, Dr. Henry P. Bowditch, of the Harvard Medical School, has received the degree of Doctor of Science from the University of Cambridge (England) in connection with the recent zoölogical and physiological congress. In announcing the conferring of the degree, the Vice-Chancellor said that Professor Bowditch was regarded by Cambridge with almost fraternal feeling as the envoy of her brothers across the Atlantic. Owing to his example and influence physiological studies are now flourishing in the United States, and the Cambridge across the sea has long been a famous centre of physiological research.

NEW YORK.

OVERCROWDING IN THE PUBLIC SCHOOLS. — The public schools reopened for the season on September 12th, and it is stated that of the 700,000 children applying for admission about 25,000, as was anticipated, could not be accommodated without infringing the rules against overcrowding the buildings. The Board of Education and Superintendent of Schools claim that they endeavored by every means in their power to avoid this unfortunate state of affairs, and place the blame on the municipal authorities. A dozen large new school-houses, however, are in course

of erection which it is expected will be ready for occupancy before or by the first of January, and in the mean while, in order to obviate the deficiency as far as possible, it is proposed to adopt in some of the more crowded districts what is known as the Copenhagen system of two school sessions a day with separate sets of pupils and teachers. This plan, it is said, has previously been adopted with a fair measure of success in some of the schools of Brooklyn.

A TALL SOLDIER. — One of the first patients admitted to the new army hospital on Liberty or Bedloe's Island was a Californian, a member of the Sixteenth Regiment of Regular Infantry, who is a veritable giant, his height being given at six feet, eight and one-quarter inches. He was brought with a number of others from Montauk and it required two cots to make him comfortable.

DEATH AT THE AGE OF ONE HUNDRED AND FOUR YEARS. — Mrs. Zoe Josephine Treville died at Riverhead, Long Island, on September 10th, at the age of one hundred and four years, five months and three days. She was a native of France, but was brought to this country by her parents when a child of five years. She enjoyed excellent health until within a few months of her death.

DEATH OF DR. GEORGE W. LINDHEIM. — Dr. George W. Lindheim, a young surgeon of the Red Cross Society, died on September 16th at his home in New York, of typhoid fever contracted in army service. A peculiarly sad feature of his death is the fact that throughout his illness anxiety of mind on account of certain criticisms of his conduct while in charge of a hospital train had a most depressing effect. On this train were 265 men of the Eighth Regiment, New York Volunteers, of which he was himself a member, and although a considerable number of them were critically ill he brought them all the way from Chickamauga without a single death occurring among them. There is reason, therefore, to believe that the criticisms mentioned are entirely unfounded, and that, on the contrary, he deserved great credit for the admirable manner in which he fulfilled the arduous duty devolving upon him. His associates all speak in the highest terms of Dr. Lindheim and of his professional ability.

DEATH OF DR. HESS. — Dr. Louis Hess, a well-known practitioner of Williamsburg, in the Borough of Brooklyn, died in the Eastern District Hospital, Williamsburgh, on September 11th, in the thirty-ninth year of his age. He was born in New York and was graduated from the College of Physicians and Surgeons in that city in 1886.

A MEDICAL MAN ON THE COMMISSION TO INVESTIGATE THE CONDUCT OF THE WAR. — The appointment of Dr. W. W. Keen, of Philadelphia, as a member of the commission is sure to give satisfaction to the medical profession, for he is known far and wide as a conscientious man and distinguished surgeon. — *New York Medical Journal.*

Miscellany.

THE SPREAD OF DISEASE BY FLIES.

THE *Medical Record* of September 17th publishes an interesting letter from Dr. M. A. Veeder concerning the spread of disease through flies. This danger he considers greater than from impure water-supply:

"To illustrate, the writer has seen fecal matter in shallow trenches open to the air, with the merest apology for disinfection and only lightly covered with earth at intervals of a day or two. In sultry weather this material, fresh from the bowel and in its most dangerous condition, was covered with myriads of flies, and at a short distance there was a tent, equally open to the air, for dining and cooking. To say that the flies were busy travelling back and forth between these two places is putting it mildly.

"To clinch the argument, and apparently leave no loop-hole for escape, I have made cultures of bacteria from fly-tracks and from the excrement of flies, and there seems to be not the slightest difficulty in so doing. Indeed, the evidence of every sort is so clear that I have about reached the conclusion that the conveyance of infection in the manner indicated is the chief factor in decimating the army. Certainly, so far as it is known to the writer, nothing adequate has been said about it in current discussions. On the contrary, there have been intimations of the existence of ideas that are positively dangerous, if what has been here said is true. There is no doubt that air and sunlight kill infection if given time, but their very access gives opportunity for the flies to do serious mischief as conveyers of fresh infection wherever they put their feet. In a very few minutes they may load themselves with the dejections from a typhoid or dysenteric patient, not as yet sick enough to be in the hospital or under observation, and carry the poison into the very midst of the food and water ready for use at the next meal. There is no long, roundabout process involved. It is very plain and direct, and yet when thousands of lives are at stake in this way the danger passes unnoticed, and the consequences seem mysterious until attention is directed to the point; then it becomes simple enough in all conscience."

METEOROLOGICAL RECORD

For the week ending September 10th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....4	29.88	76	90	62	95	80	88	E.	S.W.	3	12	C.	O.	
M...5	29.87	76	82	70	83	78	80	W.	E.	8	3	C.	C.	
T....6	29.90	79	88	72	70	75	72	N.W.	S.	15	7	F.	C.	
W...7	29.82	81	89	73	78	99	88	W.	W.	8	7	C.	O.	
T....8	30.17	67	73	61	68	62	65	W.	S.W.	8	6	O.	C.	
F....9	30.32	66	74	58	67	72	70	N.W.	S.	7	9	C.	C.	
S....10	30.30	66	74	58	69	48	58	W.	N.W.	4	10	C.	O.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 10, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Whooping-cough.
New York	3,438,899	1978	813	18.55	8.50	14.15	2.45	.75
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	413	131	16.56	11.04	9.12	3.12	2.40
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	236	105	29.53	3.44	20.64	3 01	4.30
Boston	517,732	234	112	26.66	8.60	23.65	2.58	—
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	73	36	41.10	2.74	27.40	1.37	1.37
Washington	277,000	112	34	18.69	6.23	11.57	5.34	1.78
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	68	26	27.93	2.94	24.99	1.47	1.47
Nashville	87,784	40	13	20.00	20.00	12.50	5.00	2.50
Charleston	65,165	44	14	18.16	9.08	11.35	6.81	—
Worcester	105,050	38	15	42.08	16.52	31.56	—	2.63
Fall River	95,919	—	—	—	—	—	—	—
Lowell	87,193	30	23	23.04	5.12	23.04	—	—
Cambridge	86,812	34	18	29.40	2.94	29.40	—	—
Lynn	65,220	16	3	25.00	12.50	12.50	12.50	—
New Bedford	62,416	28	13	39.27	3.57	32.13	7.14	—
Somerville	57,977	15	10	33.33	—	20.00	—	—
Lawrence	55,510	24	11	24.96	12.48	16.64	—	4.16
Springfield	54,790	17	10	52.92	11.76	47.04	—	—
Holyoke	42,564	25	17	40.00	8.00	32.00	—	—
Salem	36,062	17	12	17.64	—	11.76	—	—
Brockton	38,353	7	3	14.28	—	14.28	—	—
Malden	32,891	24	9	29.12	16.64	20.80	—	4.16
Chelsea	32,716	17	—	—	11.76	—	—	—
Haverhill	31,406	10	6	50.00	10.00	10 00	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,990	6	3	—	16.66	—	—	—
Fitchburg	28,392	14	10	64.46	—	64.46	—	—
Taunton	27,812	13	—	40.74	—	40.74	—	—
Quincy	22,562	12	6	33.33	8.33	25.00	8.33	—
Pittsfield	21,291	—	—	—	—	—	—	—
Waltham	21,812	4	2	—	—	—	—	—
Everett	21,575	10	5	30.00	10.00	30.00	—	—
North Adams	19,135	6	3	66.66	—	33.33	33.33	—
Chicopee	17,368	8	4	25.00	12.50	12.50	—	—
Medford	15,532	—	—	—	—	—	—	—
Newburyport	14,794	—	—	—	—	—	—	—
Melrose	11,965	—	—	—	—	—	—	—

Deaths reported 3,612: under five years of age 1,478; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 686, consumption 297, acute lung diseases 186, diarrheal diseases 483, typhoid fever 97, diphtheria and croup 45, whooping-cough 28, cerebro-spinal meningitis 18, scarlet fever 10, measles 5.

From whooping-cough New York 10, Philadelphia and Pittsburgh 6 each, Boston, Providence, Cambridge, Springfield, Haverhill and Brookline 1 each. From cerebro-spinal meningitis New York 5, Baltimore, Worcester and Holyoke 3 each, Boston and Salem 1 each. From scarlet fever New York 4, Philadelphia and Pittsburgh 2 each, Baltimore and Lawrence 1 each. From measles New York 5.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending September 3d, the death-rate was 24.4. Deaths reported 5,242; acute diseases of the respiratory organs (London) 127, diarrhea 1,438, whooping-cough 75, diphtheria 43, fever 40, measles 30, scarlet fever 19, small-pox (Gateshead) 1.

The death-rates ranged from 15.1 in Halifax to 37.0 in Sunderland; Birmingham 29.5, Bradford 21.6, Cardiff 19.1, Gateshead 31.2, Hull 27.9, Leeds 22.0, Liverpool 30.9, London 22.0, Manchester 30.0, Newcastle-on-Tyne 29.5, Nottingham 21.6, Sheffield 27.7, West Ham 21.6.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING SEPTEMBER 15, 1898.

MURRAY, R. D., surgeon. To rejoin station at Mobile, Ala., September 2, 1898. To proceed to New Orleans, La., for special temporary duty. September 6, 1898.

CARTER, H. R., surgeon. To proceed to Taylor, Miss., for special temporary duty. September 2, 1898. To rejoin station at New Orleans, La., temporarily. September 13, 1898.

BANKS, C. E., surgeon. Granted leave of absence for twenty-two days from September 12, 1898, on account of sickness. September 14, 1898.

GLENNAN, A. H., surgeon. To proceed to Tortugas Quarantine Station for special temporary duty. September 12, 1898.

WARDIN, EUGENE, surgeon. Relieved from duty at Santiago, Cuba, and directed to return to the United States by the first conveyance. September 3, 1898.

BROOKS, S. D., surgeon. Granted leave of absence for four days. September 10, 1898.

MCINTOSH, W. P., passed assistant surgeon. To proceed to Grand Junction, Tenn., for special temporary duty. September 6, 1898.

MAGRUDER, G. M., passed assistant surgeon. To close Montauk Point, N. Y., Quarantine Station, then to rejoin station at Memphis, Tenn., reporting to Bureau *en route*. September 14, 1898.

KINYOUN, J. J., passed assistant surgeon. Relieved from duty at Montauk Point, N. Y., and directed to rejoin station, Hygienic Laboratory, Washington, D. C. September 4, 1898.

COBB, J. O., passed assistant surgeon. To report at Bureau. September 2, 1898. To proceed to Jackson, Miss., for special temporary duty. September 3, 1898. To proceed to Taylor, Miss., for special temporary duty. September 5, 1898.

YOUNG, G. B., passed assistant surgeon. To report at Bureau for special temporary duty. September 6, 1898.

STIMPSON, W. G., passed assistant surgeon. To proceed to Grand Junction, Tenn., for special temporary duty. September 6, 1898. To proceed to Holly Springs, Miss., for special temporary duty. September 8, 1898.

STEWART, W. J. S., passed assistant surgeon. Granted leave of absence for three days from September 6, 1898. September 3, 1898.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for two days upon being relieved from duty at Montauk Point, N. Y., then to rejoin station, Hygienic Laboratory, Washington, D. C. September 14, 1898.

CUMMING, H. S., assistant surgeon. Upon closure of the Montauk Point, N. Y., Quarantine Station, to rejoin station at New York, N. Y. September 14, 1898.

TABB, S. R., assistant surgeon. To proceed to Reedy Island Quarantine Station, Del., and report to commanding officer for duty. September 6, 1898.

HASTINGS, HILL, assistant surgeon. To proceed to St. Louis, Mo., and assume temporary charge of Service. September 13, 1898.

LAVINDER, C. H., assistant surgeon. To report at Bureau for instructions. September 14, 1898. To proceed to Egmont Key Detention Camp, Port Tampa, Fla., and report to commanding officer for duty. September 15, 1898.

PARKER, H. B., assistant surgeon. Assigned to duty as Sanitary Inspector on U. S. Transport "Minnewaska." September 3, 1898.

FOSTER, M. H., assistant surgeon. To proceed to Savannah, Ga., and await orders. September 5, 1898.

LUMSDEN, L. L., assistant surgeon. To proceed to Delaware Breakwater Quarantine, Del., and report by letter to commanding officer for duty and assignment to quarters. September 6, 1898.

WHITE, MARK J., assistant surgeon. To rejoin station, Immigration Service, New York, N. Y. September 8, 1898.

SOCIETY NOTICE.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The annual meeting of the Association will be held October 11, 12, 13 and 14, 1898, in the Capitol, Nashville, Tenn., commencing at 10 o'clock, A. M., October 11th.

HENRY E. TULEY, M.D., *Secretary*,
111 West Kentucky St., Louisville, Ky.

BOOKS AND PAMPHLETS RECEIVED.

Thirtieth Annual Announcement of Louisville Medical College, Session of 1898–99.

Transactions of the Ohio State Medical Society, 1898, Columbus, O. Cleveland: J. B. Savage. 1898.

The Tuberculin Test in Cervical Adenitis. By Edward O. Otis, M.D., Boston, Mass. Reprint. 1898.

Eighteenth Annual Announcement of the University Medical College of Kansas City, Mo. Session of 1898–99.

Uremia in the Process of Child-Bearing. By Henry F. Lewis, A.B., M.D. (Harv.), Chicago, Ill. Reprint. 1898.

Transactions of the Medical Society of the State of New York for the year 1898. Published by the Society. 1898.

The Conservative Treatment of Fibroid Tumors by Myomectomy. The Conservative Treatment of Pelvic Suppuration of Puerperal Origin. By Charles P. Noble, M.D., Philadelphia. Reprint. 1898.

Address.

AUENBRUGGER AND LÆNNEC, THE DISCOVERERS OF PERCUSSION AND AUSCULTATION.[1]

BY EDWARD O. OTIS, M.D., BOSTON,
President of the American Climatological Association.

(Concluded from No. 12, p. 285.)

RÉNÉ THÉOPHILE HYACINTHE LÆNNEC was born at Quimper, lower Brittany, France, February 17, 1781. His mother dying of consumption when he was five years of age, his father for some reason or other placed him under the care of an uncle who was the rector of the parish of Etian. His guardian soon afterwards being promoted to another field of labor transferred his charge to another uncle, Guillaume François Lænnec, a physician and man of eminence at Nantes, and a professor in the medical school there. He became a veritable father to the boy; gave him a sound and thorough education in Latin and Greek, and at an early age excited in him a love for the exact sciences and observation. So what seemed at first to be a misfortune proved a great good fortune, not only for Lænnec himself but for the world. If he had remained with his father, or his uncle the rector, he might have been a lawyer or a priest. No doubt he would have achieved distinction in either profession, but the world would have had to wait longer for mediate auscultation. He received his early medical education under the direction of his devoted uncle, and at the age of nineteen in 1801, he went to Paris to complete it, where he entered the service of Corvisart at the Hôpital la Charité.

Lænnec took his doctor's degree in 1804, at the age of twenty-four. He had been a most industrious student, and during his first three years at La Charité he drew up a minute history of nearly four hundred cases of disease. After entering upon the practice of medicine, he continued with unabated zeal his studies and observations; became the editor of the *Journal de Médecine*, and lectured upon pathological anatomy, to investigations in which he continued to devote himself. He also wrote various monographs, as he continued to do during his professional life. In 1816, at the age of thirty-six years, he was appointed chief physician to the Neckar Hospital, and soon after entering upon his duties he made the discovery which immortalized his name.

One day while traversing the court of the Louvre, he perceived some children amusing themselves by applying the ear to the two extremities of a long beam or piece of wood, and transmitting reciprocally the light sound arising from the blow of the finger against the opposite end. In the intermediate space no sound was perceptible. Lænnec reflected upon this, and some days after, on being consulted by a young woman, presenting the general symptoms of cardiac disease, with whom percussion was unsatisfactory on account of her stoutness, and her age and sex prohibiting the direct application of the ear to the chest, he recalled the children in the court of the Louvre. Immediately he took a quire of paper and made a tight roll, one end of which he applied to the chest of the young girl, and the other to his ear. With delight he found that in this way he perceived much more plainly the beating of the heart. Thus, as Chereau[2] says, the sport of the children and respect for modesty are two facts which played a part in the discovery of mediate auscultation.

When profound knowledge in any branch of learning exists and genius is present, the discovery is not far distant, and any seeming trivial event may disclose it. As Richardson[3] well says, "How truly trifling a circumstance may be the vital circumstance which such men disclose, from what to men, unendowed with the finer faculty, are mere passing incidents!" "What millions of physicians," he continues, "must have attended millions upon millions of chest disease between Hippocrates and Lænnec; physicians learned as Galen, wise as Sydenham, keen as Morgagni! And yet Lænnec was the man and mind wanted to make, or rather complete a discovery that had been lying ready for birth some thousands of years. It



LÆNNEC.
(From the *Practitioner*.)

waited for the fat young lady with heart disease whose chest could not be touched by ears polite, for the quire of paper that admitted of being rolled into a tube for listening through, and for this man Lænnec to do the part of thoracic eavesdropper."

Lænnec devoted two years in testing and developing his new discovery. One can but faintly imagine the unspeakable delight which he must have experienced as he found himself enabled to clearly determine various pathological conditions of the heart and lungs, previously obscure and undetermined. How eagerly he must have hurried to his hospital clinic each day, and rejoiced to find there a new case of thoracic disease. His patient and untiring industry of the previous years in the study and observation of disease was all unwittingly preparing him to utilize at

[1] The President's Address at the meeting of the American Climatological Association, at Maplewood, N. H., August 31, 1898.

[2] Chereau, Dr. A.: Lænnec, Archives Générale de Médecine, 7 Series, 4, 1879.

[3] Lænnec, by Benjamin Ward Richardson. The Asclepiad, 5, 1888.

once his discovery. The tool fell into trained hands ready to produce with it the perfected result.

In 1818 he communicated his discovery to the Academy of Sciences, and a committee of three reported in complimentary terms upon it, but without enthusiasm. In the succeeding year, 1819, he published his immortal "Traité l'Auscultation Médiate." After referring to the incident which led to the discovery, he says: "I forthwith commenced at the hospital Neckar, a series of observations which have continued to the present time. The consequence is that I have been enabled to discourse a set of new signs of disease of the chest, for the most part certain, simple and prominent, and calculated, perhaps, to render the diagnosis of diseases of the lungs, heart and pleura as decided and circumstantial as the indications furnished to the surgeon by the introduction of the finger, or the sound in the complaints wherein they are used."

Time has proved to be true all he claimed, and, as Dr. Stokes says, "The introduction of auscultation and its subsidary signs was one of the greatest boons ever conferred by the genius of man on the world."

Lænnec said nothing new upon percussion, nor did he ever describe all the results indicated by Auenbrugger and Corvisart, but, as Mailliot says, he was entirely absorbed in auscultation; still in his chapter upon its use he very fairly estimates its value, and speaks appreciatingly of its discoverer: "One of the most valuable discoveries ever made in medicine."

At first he was not inclined to give a name to his new instrument, but finding that others were suggesting various ones he happily fixed upon the euphonious one it now bears. He describes it as follows: "A wooden cylinder, an inch and a half in diameter, and a foot long, perforated longitudinally by a bore three lines wide, and hollowed out into a funnel-shape to the depth of an inch and a half at one of its extremities. There is a stopper or plug which can be inserted into its excavated extremity, thus rendering it a simple cylinder. It is divisible in the middle of its length by a screw, partly for the convenience of its carriage, and partly to permit its being used of half the usual length." The simple tube being used for the heart and voice, and with the plug out for exploring respiration and rhouci.[10]

Of the treatise itself you are doubtless all familiar and can attest the truth of Dr. Addison's[11] averment that it will ever remain a monument of genius, industry, modesty and truth. "It is a work," he continues, "in perusing which every succeeding page only tends to increase our admiration of the man, to captivate our attention, and to command our confidence. We are led insensibly to the bedside of his patients; we are startled by the originality of his system; we can hardly persuade ourselves that any means so simple can accomplish so much, can overcome and reduce to order the chaotic confusion of thoracic pathology; and hesitate not in the end to acknowledge our unqualified wonder at the triumphant confirmation of all he professed to accomplish."

A brief reference to his conclusions upon the curability and treatment of phthisis may be interesting as showing how nearly in accord he was with present day opinions: "The cure of consumption," he says, "when the lungs are not completely disorganized, ought not to be looked upon as at all impossible, in reference either to the nature of the disease or of the organ affected." "The pulmonary tubercles differ in no respect from those found in scrophulous glands; and we know that the softening of these latter is frequently followed by a complete cure." After reviewing the various cures suggested — a motley crowd of them — bleeding, the actual cautery, issues, blisters, mineral waters, purgatives, balsamics, vapors, the air of cow houses, inspiration of different gases, mercurial salivation, emetics, acorns, roasted or raw, charcoal, different kinds of mushrooms, crabs, oysters, frogs, vipers and chocolate — he finally concludes by saying, "that although the cure of tuberculous phthisis be possible for nature, it is not so for medicine." In order to make a direct attack upon the disease, he says, "we ought probably to be able to correct an unknown alteration in the assimilation or nutrition. Of all the measures hitherto recommended for the cure of phthisis none had been followed more frequently by the suspension or complete cessation of the disease, than change of situation." In one of his hospital wards he tried the experiment of establishing an artificial marine atmosphere by means of fresh sea-weed, suggested to him, doubtless, by the wholesome sea-air on the coast of his native Brittany. His statements, based upon accurate and abundant observations, carefully analyzed and verified by dissections, and illustrated by frequent histories of cases, are admirable illustrations of the finest kind of scientific medical writing. His style is simple and lucid. "The fundamental truths presented by the discoverer of auscultation," says Dr. Flint, Sr,[12] "not only remain as the basis of the new science, but form a large portion of the existing superstructure. Let the student become familiar with all that is now known on this subject, and he will then read the writings of Lænnec with amazement that there remained so little to be altered or added."

After the publication of his treatise, Lænnec's health was so impaired that he was compelled to give up his work and retire to his native province, and, as one of his biographers expresses it, "escape his glory." He had completely exhausted his limited supply of physical force, and suffered from extreme depression of spirits which not infrequently follows excessive mental application. With freedom from care and labor, and an outdoor life amidst the delightful associations of childhood and youth, he gradually wooed back a moderate degree of health, and at the end of two years returned to Paris, "solely influenced," says Forbes, "by the idea that he might be of use to mankind by extending the knowledge of auscultation." It is quite possible, too, that he thought of the fate which had befallen Auenbrugger's discovery until Corvisart shook the dust from it. It was a fatal step as the sequel proved, and it seems to me doubtful if his subsequent labors, particularly in the revision and additions to his treatise, added materially to his great achievement as so exhaustively unfolded in the original edition of his work; but his courage was admirable and his motive noble and unselfish.

It was in the year 1821 that he returned to Paris, being then forty years of age. The following year he was elected professor of medicine in the college of France, and in 1823 professor of clinical medicine at

[10] Through the kindness of Dr. V. Y. Bowditch, one of Lænnec's original stethoscopes (used by him) was exhibitted. It was the property of Dr. Henry I. Bowditch, and left by him to the Warren Museum of the Harvard Medical School, where it now is.

[11] Hudson: Lænnec, British Medical Journal, ii, 1879.

[12] New Orleans Medical News, 6, 1859-60, page 736.

the Hôpital la Charité where, nearly twenty years before, he had been a medical student under Corvisart. Students and physicians from France and other countries flocked to his clinics, and through them mediate auscultation became widely known and popularized. In his clinic at la Charité, he was teaching the medical world, and herein he had an immense advantage over Auenbrugger who was never a clinical teacher. Besides his exacting hospital labors, he resumed his private practice, became physician to the Duchess of Berri, and began a revision of his treatise on auscultation, which was so complete that it almost seemed a new work. No man with his impaired and delicate constitution could endure the strain of such excessive and continuous work, and in the midst of the revision the break came. By a heroic struggle he managed to complete it, and then his labors for this world were at an end. "After having uselessly employed two bleedings and some other means," as one of his contemporaries says, "and seeing that he grew more and more feeble and thin," cough, fever and other distressing symptoms supervening, he set out again for Brittany, hoping that his native air and soil might once again prove beneficial, instinctively feeling that if anything could revive him it was kindly nature as expressed in outdoor air, familiar scenes, and restful life, rather than bleedings or potions. Infinitely pathetic was his endeavor to show that his physicians were mistaken in their diagnosis of pulmonary tuberculosis, when the symptoms of the disease were so evident, as he himself would have quickly recognized in one of his patients. His death occurred August 13, 1826, at the age of forty-five. He was married two years before, but left no descendants.

There stands in the Cathedral Square at Quimper, Brittany, a statue of Lænnec erected in 1868. The illustrious physician is represented clothed in official costume, sitting; holding in his right hand a stethoscope, while he raises the left as in the act of a demonstration. Upon it is the following inscription:

A l'inventeur de l'auscultation,
Lænnec, Réné-Théophile-Hyacinthe,
Né à Quimper, le 12 février 1781,
Mort à Plouaré en 1826;
Professeur à la Faculté de Médecine de Paris
et au Collége de France,
Membre de l'Académie de Médecine."

Ce monument a été élevé
par l'Association générale de Médecine de
France, par la Bretagne,
et par les Médecins français et étrangers, 1868.

In personal appearance Lænnec was small of stature, had fine clear cut features, a refined and sensitive mouth, extremely delicate complexion, and keen eyes. He was of a nervous temperament, and physically was never robust, although he accomplished such an enormous amount of work. He was simple and abstemious in his habits, especially in eating, and ordinarily was never very long at the table. "He was mild and agreeable in his manners, and of a quiet and even temper." Ardent passions were unfamiliar to him. He possessed firmness, and was tenacious of his opinions. Like most men of his calibre, he was humble and kind-hearted, which was in no degree lessened by his great reputation and the deference paid to him in the latter years of his life. He used to ride to the hospital in a modest hired cab, and his dress was always the same; short breeches, a black coat, and white cravat. When, however, he paid a professional visit to the Duchess of Berri or Cardinal Fesch, whose physician he was, he wore, according to the custom in making such visits, a dress coat, a regulation chapeau, and a ceremonial sword.

In spite of his feeble constitution, he was a great lover of the chase, and in the season he used to go out to the parks in the suburbs of Paris and indulge in this sport. In the winter he would amuse himself by shooting at a target with an air-gun in his apartment. He was fond of music and played upon the flute, his fine, delicate lips enabling him to obtain a good tonguing. This knowledge of music and the power which it gave him, of making fine distinctions in differentiating respiratory sounds and vocal resonance, must have been invaluable to him in developing his discovery; in his treatise he refers to certain flute sounds to illustrate his meaning when speaking of the pectoriloquy of large excavations. In one corner of his apartment he set up a lathe and amused himself in turning objects, and used to make his own stethoscopes.

"The rich," says his contemporary Bayle, "he frequently refused to visit on account of the bad state of his health, but the poor never; nor was it only in the way of professional advice that he served the poor; he was extremely liberal in relieving their distress with pecuniary aid, and in a manner so unostentatious, that it is only since his death that the extent of his bounty has come to light." He was never greedy after practice for the sake of the money it would bring him. His private practice is said to have brought him about twenty-five thousand francs a year.

He had fixed religious principles which he did not conceal, and his death, says Bayle, was that of a Christian. As Flint says, "His life affords an instance among many others disproving the vulgar error that the pursuits of science are unfavorable to religious faith."

Lænnec's whole life was so absorbingly devoted to professional pursuits that there was little time or strength left for anything else; and yet such an active mind as his could hardly escape knowing something of other departments of knowledge. Latin and Greek he knew to perfection, and was accustomed to conduct his clinics in the former language, and sometimes to correspond in it. "Lænnec's genius," says Forbes, "was decidedly inventive, and his turn of thought original." He was a consummate student in the art of observation and possessed "profound knowledge of organic diseases," and "was remarkable for his diagnosis of them in the living body." "In the diagnosis of diseases of the chest, he was universally allowed to be without a rival." Forbes thinks he did not possess in a high degree the mental qualifications necessary to constitute a great and skilful practitioner; perhaps he did not, nor does it so much matter; many men of lesser ability could be good practitioners, but a discoverer, teacher and investigator of Lænnec's capacity appears but seldom.

He was absolutely true and unselfish in his professional aims. To improve his art, to seek truth in it wherever found, to establish the diagnosis of disease upon the sound basis of pathological anatomy and accurate observation, and to extend the knowledge of his new discovery; this was what he labored for. In brief, the impelling motive of his life was, as Flint says, "a love of truth for its own sake, and a desire to

be useful to his fellowmen" — the ideal and aim of a lofty soul. His courage in continuing his labors in weakness and suffering was superb and heroic. How fine the struggle to complete the second edition of his treatise.

There is something pathetic in the loneliness of Lænnec's life so far as social and domestic relations were concerned, as contrasted with that of Auenbrugger's. His daily home-coming after his arduous duties at the hospital must have been a rather dreary one, with no happy greeting of wife or children; but he was so absorbed in his work that we may suppose he did not consciously miss what he had never had. Nor do such men as he care much for social distractions; the physician is ever intimate with life and human nature in all its infinite variety.

Lænnec, as I have said, published various papers, reviews and criticisms, the most of them written in the early part of his life; the most noteworthy perhaps being a treatise on the melanoses, one on encephaloides, one on pathological anatomy, an essay on angina of the chest, and a description of the anatomical condition of the lungs in emphysema. Of this latter, Rokitansky said that had Lænnec done nothing more it would have been sufficient to render his name immortal. "His writings are generally marked," says Forbes, "by sound sense, clear views, and perspicuous order."

Such was Lænnec's life, and such his contributions to the advancement of his art. To few in our profession, or in any other, is it given to add so much to the sum total of the existing knowledge upon the subject of their labors. To all of us, however, it is permitted to maintain the same exalted attitude towards our profession, and a readiness to increase, if happily we may, the knowledge of it, however humble the contribution may be. The greatest honor any of us can pay to the memory of such men as Auenbrugger and Lænnec is to emulate their lofty example.

I trust it may not have been without interest to you to have reviewed with me the lives of these two illustrious men, whose discoveries have made it possible for us, as I said in the beginning, to exist as an Association especially devoted to disease of the thoracic cavity. In the ever increasing mass of medical knowledge to become familiar with, but little time or opportunity is left for the study of medical biography, but, as Dr. Flint says, "The contemplation of the lives of worthy brethren who have gone before us is well calculated to stimulate our zeal, guide our aims, encourage us to perseverance, and increase the attachment to our calling." "Who can doubt," he continues, "that it is in the order of Providence for the illustrious dead to serve as shining lights for the living! To illumine the paths of those who are to follow in their footsteps was part of their mission. This thought should stimulate the desire to live beyond this bodily existence, in the cherished remembrance of mankind. It is a noble and virtuous ambition to strive thus to survive on earth the brief term of mortal life."

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Original Articles.

THE SURGERY OF GASTRIC ULCER, WITH THE REPORT OF A CASE OF GASTROLYSIS.[1]

BY J. COLLINS WARREN, M.D., BOSTON.

GASTRIC ulcer is a disease so amenable to treatment in the vast majority of cases that it has been considered an affection almost exclusively within the domain of internal medicine. It has long been recognized that in a small percentage of cases from 1.2 to 13 per cent. variously estimated, the very fatal complication of perforation occurs, which could only be met by surgical intervention, but there are a number of other conditions which justify surgical interference, and it is the purpose of this paper to call attention to some of them. Moreover, it is a more common disease than is generally supposed to be the case; according to Ewald it affects from four to five per cent. of the whole population. Although three-fourths of all ulcers heal spontaneously, the conditions which give rise to ulcer, or follow it, often lead to serious complications which cannot be relieved by internal medication. These conditions form a chain of evils whose sequence is not entirely clear, but which seem more or less intimately connected with one another. They resemble that group of symptoms seen elsewhere following obstructions, and recalling in some cases, without great stretch of imagination, those attending enlargement of the prostate gland. We have imperfect emptying of the stomach, dilatation, a change in the chemical products secreted, hyperacidity and ulceration with its attendant sequelæ, inflammation and hemorrhage.

Whether pyloric stenosis precedes or follows ulceration is not always clear. The great susceptibility of the pylorus to reflex irritation is the cause of a great variety of diseases of the stomach, and also of the persistence of the anatomical lesions which accompany it. (Comte.)

The intimate association of pyloric spasm with ulcer has suggested the possibility that the former is the primary affection. The theory is at least generally

[1] Read before the Boston Society for Medical Improvement, May 16, 1898

strengthened by the fact that operations directed towards relief of spasm and of obstructions have a most beneficial effect upon the whole group of morbid processes.

At all events, with the development of ulcer we find either a spasm of the pylorus which subsequently becomes a permanent stricture due to inflammatory infiltrations, or the cicatricial contractions of a pyloric ulcer may cause organic stricture. In many cases a fold or bar is found at the pyloric neck of the stomach, around the edge of an ulcer, and exerts a valve-like action at the pylorus.

It is, of course, not always necessary that mechanical obstruction should exist to bring about dilatation of the stomach, as that organ is so constituted that a primary or atonic dilatation can develop to such a point, that all the conditions of a stenosis of the pylorus may be produced.

We have then a sort of vicious circle of events in the spasm or stricture of the pylorus, hyperacidity and ulceration, which are the prominent factors in the group of symptoms of this affection, and it is among the complications of this complex condition that we find the indications for surgical interference.

Even under the most favorable combination of circumstances, namely, the healing of the ulcer, we find subsequent cicatrices, which as the cause of pyloric stenosis may give rise to serious interference of nutrition, and may pave the way to a grave cachexia such as phthisis.

The occurrence of cancer in the ulcer or its cicatrix is not a very rare event. According to Comte four to nine per cent. of cancers of the stomach have been preceded by ulcers as a preliminary stage. Carcinomatous degeneration of ulcer or its scar is said by Hauer to occur in six per cent. of all cases of ulcer. Doyen thinks that Comte's figures are too low and regards as one of the greatest triumphs of stomach surgery, not the removal of cancer, but the cure of non-malignant affections which may eventually give rise to it.

The mortality of ulcers of the stomach is rated by some as high as 28 per cent.; on the other hand, of 556 cases treated by Leube medically, 12 died, or 2 per cent.; of these, 8 per cent. died from hemorrhage and 1.2 died from perforation. Surgical treatment according to this author is indicated in only about 4 per cent. of all cases.

Statistics given by various authors vary so greatly that it is hardly worth while to repeat them here, but if we take into account the various complications above mentioned, we find, according to Mikulicz, that the mortality of this disease rises to quite an appreciable figure, 25 to 30 per cent., and it begins to be apparent that among this pretty large remnant of fatal cases there are a not inconsiderable number which might be saved by surgical intervention provided always an operation can be found that will break the vicious circle and restore a normal physiological condition.

The principal conditions under which surgery may become necessary are perforation, hemorrhage, persistent spasm of the pylorus with its attendant pain and dilatations and, finally, perigastritis with the formation of adhesions and abscess.

The conditions demanding operation prevail according to Leube in about four per cent. of the cases.

The operations which have been most frequently employed for the relief of these conditions are resection of portions of the stomach or pylorus, gastro-enterostomy and pyloroplasty.

Statistics given by Mikulicz show that in a collection of 238 of these three operations, the mortality previous to the end of 1890 was quite high, namely, 48.1 per cent.; but that between 1895–7 it had fallen to 10 per cent., owing doubtless to greater experience and improved technique. They also show another interesting fact, that previous to 1891 resection was most frequently performed and pyloroplasty least frequently, but that the figures had gradually changed so that at the present time the order was reversed, and that resection being the most dangerous of the three was less and less resorted to, and pyloroplasty and gastro-enterostomy in about even numbers had been the operations usually adopted having almost one-half the percentage of mortality as resection.

It will be seen from these figures that surgical procedures of this kind are not more dangerous to life than the disease itself when allowed to run its course.

Let us now turn for a moment to the conditions which demand surgical operation: we find, first, perforations of the ulcer, about which there has never been any doubt as to the propriety of interfering in spite of the many fatal cases. The only chance of a favorable result appears to exist when the stomach is empty at the moment of perforation, and then only when the operation is performed within ten hours. Under these circumstances, according to Leube, about one-quarter of the cases are saved.

According to Weir and Foote the mortality of operated cases of perforation is 71 per cent. Of these operated upon in the first twelve hours it is only 39 per cent., but between twelve and twenty-four hours, the percentage of mortality rises to 76 per cent.

The perforation may take place into the free abdominal cavity and then produces a general septic peritonitis, a most desperate condition. It is, however, interesting to know that at least a dozen cases are on record in which recovery has been perfect though an undoubted perforation has occurred (Weir). Fortunately as the ulceration nears the surface, a protective perigastritis is usually set up, and what in some cases causes an independent complication, necessitating a special operation for its relief, is here a safeguard against general infection. The localized peritonitis brings about firm adhesions and walls off the general peritoneal cavity. It is under such circumstances that the small numbers of spontaneous cures reported take place. This condition more frequently leads to abscesses (sub-phrenic or elsewhere). According to Debove and Renault, the following is the relative frequency of the seat of perforation, — anterior wall 85 per cent., cardiac extremity 4 per cent., lesser curvature 18 per cent., pylorus 10 per cent., posterior wall 2 per cent.

Perforation in the anterior wall is less liable to be protected by adhesions than elsewhere. Fortunately under the skilful treatment of Leube this fatal complication has been reduced to 1.2 per cent. Needless to say that although some advise waiting for the first shock of the perforation to subside, the operation should be performed at the earliest possible moment.

As to the choice of operation, an attempt might be made in favorable cases to resect the ulcer, but suture is more rapid and less liable to increase shock. The particular method employed would depend upon the circumstances of each individual case.

The next most serious complication is hemorrhage. According to various authors fatal hemorrhage occurs

in 3 per cent. to 5 per cent of the cases, but in Leube's statistics, made up from 556 cases treated by himself, there was only 0.8 per cent. deaths from this cause. Hemorrhage is, however, one of the most common complications of ulcer and it accordingly becomes an important question to determine which are the cases adapted to surgical interference. It is of course only in cases which threaten life that the surgeon would advise operation. Even cases of profuse hemorrhage often get well under medical treatment. It would therefore be well to wait to see if under a proper treatment the hemorrhage might not stop. A second or third bleeding would bring the patient into a condition unfavorable for operation, and it is under these circumstances that the surgeon is usually called upon to operate. Lindner justly says, "If the surgeons cares for his statistics in these cases he will not operate; if he wishes to give his patient a chance for life he will." Fortunately profuse hemorrhage kills in less than one per cent. of the cases. It is only by experience that one can learn when to interfere in such a condition.

The indications are much clearer in cases of frequent small and persistent bleeding extending over a period of weeks or months until the patient is gradually reduced to a condition of fatal anemia. Here it is generally agreed that when medical treatment fails to prevent recurrence a surgical operation should be performed.

In cases of profuse hemorrhage it is justifiable to attempt to find the bleeding vessel and tie it, thus following out the surgical law in regard to hemorrhage. Attempts have been made to do this in numerous cases, but usually without success. The bleeding vessel, it appears, is most frequently either the superior coronary artery, or one of the large arteries in the pancreas, to which organ the stomach has attached itself. In the latter case the vessel is a branch of the celiac axis. More rarely the bleeding point comes from the splenic artery. Mikulicz reports only two cases in which the vessel was found.

In one case the ulcer was seated on the lesser curvature and the bleeding came from the superior coronary artery. Mikulicz excised the ulcer and sewed up the wound successfully. In many cases there is so much infiltration about the base of the ulcer especially when it is attached to the pancreas, that excision is out of the question. Under such circumstances the hemorrhage has been arrested by cautery. This operation has, however, not been attended with success, the patient dying either from shock or a recurrence of the hemorrhage. A combination of cautery with gastro-enterostomy, thus obtaining a physiological rest, seems to offer a better chance. Two such cases are reported by Küster with successful result. It has happened not infrequently that no ulcer could be found, or there may be several ulcers, and it is then difficult if not impossible at times to determine the bleeding point. Under these circumstances gastro-enterostomy or pyloroplasty are the operations to be selected. Lindner recommends circular or segmentary resection of the ulcer when it can be performed as a more radical method of cure because sewing the ulcer or the cautery are mere temporary procedures. Care must be taken, however, not to make a stricture of the stomach, and in case of any doubt a gastro-enterostomy may also be necessary.

Another direct complication of the ulcer itself is pain of an intense character and persistent vomiting. It is only in extremely rare cases that an operation would be indicated. Either gastro-enterostomy or resection of the ulcer are the operations to be employed.

A case of this class came under the observation of the writer some fifteen years ago. The prevailing symptom was pain lasting over a great number of years, the patient eventually becoming addicted to large doses of morphine given subcutaneously. Death finally occurred, with symptoms of profound anemia, and a large ulcer with extensive perigastritis was found near the pyloric orifice. An operation may be indicated in extreme cases of recurring ulcers.

The sequelæ of ulcer comprise conditions already referred to, namely, dilatation of the stomach from atony or as the result of pyloric stenosis and perverted secretion consisting in an increase of hydrochloric acid. These constitute conditions extremely unfavorable for the healing of ulcer. The spasmodic contraction of the pylorus and the dilatation of the stomach cause a constant pulling upon the borders of the ulcers, while the increased acidity favors ulceration rather than granulation. The presence of the ulcer, on the other hand, tends to aggravate the stenosis, which is often partly functional. There is, in fact, the same mutual reaction that we see in a paralyzed or obstructed bladder. The same principles of treatment apply, therefore, to both. The obstruction must be relieved and physiological rest given to the organ if possible.

Experience shows that this symptom is attended with beneficial results in the case of the stomach. After the operations of pyloroplasty or gastro-enterostomy the movements of the stomach return in a few months, and the secretions often return to normal. If an ulcer is still present the symptoms of it disappear. Gastralgia and dyspepsia are relieved, the patients lose their distress, gain flesh and appetite, and become well again.

Of operations for the relief of stenosis, there are three which possess considerable merit, and may be considered here: resection of the stomach, gastro-enterostomy and pyloroplasty.

Resection of the pylorus is the most radical operation, but is not held in so great favor as the other two, as its mortality is still high.[2] Compte reports 17 cases

Resection	27.8%
Gastro-enterostomy	16.2%
Pyloroplasty	13.2%
Combined	16.1%

of resection for ulcer, with five deaths. Moreover, the size and situation of the ulcer do not always permit of this operation. It is manifestly more suited to ulcers near the pyloric orifice. A large ulcer, with adhesion, would make the operation still more formidable. Not infrequently an adjoining organ may form part of the base of an ulcer. Resection is indicated when there is any uncertainty as to the presence of cancer, and inasmuch as cancer follows not infrequently upon ulcer, this operation gives a measure of safety for the future which is not obtained by other methods.

Excision of the ulcer is suitable for small ulcers, particularly those in the anterior wall where perforation is liable to occur. It may also be combined with other operations. In two instances Mikulicz excised the ulcer and stretched the mucous membrane before performing pyloroplasty. This can be done if the

[2] In a collection of 234 cases of benign stenosis and ulcer the following rate of mortality was found by Mikulicz to exist.

ulcer is easily accessible through the incision made for the operation.

Pyloroplasty is a comparatively safe operation, but it is indicated only in cicatrices of the pylorus without adhesions. It is contraindicated when there are adhesions and when there is an open ulcer near or in the pylorus. If successfully performed, there is also some danger of subsequent stenosis. As a scar is left at the pylorus the cicatricial process previously existing may still go on. Theoretically, it restores the physiological conditions more perfectly than gastro-enterostomy.

Gastro-enterostomy, when successfully carried out, is a most efficient drain for the obstructed and distended stomach. It, moreover, gives physiological rest to that portion of the stomach which is in a state of muscular activity during the digestion. The suggestive diagrams of Cannon[3] show how active this is in certain animals. It is here, moreover, that we find most of the ulcers. By this operation we keep empty the atonic and dilated viscus and switch out of the digestive circuit the diseased bowel. This operation has many enthusiastic supporters, among them Doyen, who reports 21 cases, *all* of which were successful. There is one serious drawback to it. After the jejunum has become attached to the stomach, a spur is occasionally found which prevents the stomach's contents from flowing into the efferent bowel. The contents find their way consequently into the afferent bowel, and return again to the stomach, a vicious anatomical circle thus being established. As a result of this complication the stomach cannot empty itself, and uncontrollable vomiting sets in. The patient usually succumbs at the end of one or two weeks after the operation, and a post-mortem examination shows an enormously distended stomach and duodenum and an empty jejunum.

This mechanical difficulty can be overcome by cutting through the spur and establishing communication between the afferent and efferent intestine. An entero-anastomosis performed in this way is the only sure method of overcoming the difficulty. In case there is great atony of the stomach it might be desirable to forestall this complication and perform gastro-enterostomy and entero-anastomosis of the attached jejunum simultaneously.

Loreta's operation or digital dilatation of the pylorus and gastroplicatio or taking a fold in the dilated stomach are operations which are less frequently performed at the present time. Loreta's operation does not seem to ensure against a relapse of the stenosis and gastroplicatio, although diminishing the size of the stomach does not relieve the stenosis or restore the atonic condition of the muscular walls.

Perigastritis is a condition which accompanies ulcer when the ulceration approaches the parietal peritoneum. It may be of all degrees of severity. There may result very slight adhesions to the abdominal walls, or they may be so extensive as to fasten portions of the stomach to other organs and form a perceptible tumor which can be felt through the abdominal wall. Finally, it may be the forerunner of suppurative processes and subphrenic abscess.

The symptoms of perigastritis are: cardialgia, boring pains, vomiting, hyperesthesia combined with dilatation of the stomach, localized tenderness on pressure, usually in the epigastrium or hypochondrium. In perigastritis postica there may be tenderness in the lumbar regions near the first or second lumbar vertebra. Perigastritis may be suspected where treatment fails to relieve the symptoms of ulcer. The pain resembles somewhat that observed in hernia epigastrica.

These symptoms are brought about by the anchoring of portions of the stomach, so that during the change in volume of the organ and its muscular movements the adhesions are pulled upon. Occasionally they are torn and lacerated by the movements of the abdominal wall. Recurrent attacks of inflammation may be set up in this way.

The operation which has been devised for the relief of this complication is eminently successful and is called gastrolysis. It consists simply in breaking up the adhesions. In the milder types of this affection the operation may be almost a trivial one, but when accompanied by ulcer, other operations directed to the relief of the ulcer must be performed simultaneously. In some cases the simple breaking up of even extensive adhesions is followed by the most satisfactory results. Quite a number of these cases are recorded. Thus Robson operated in 1893 in two cases of adhesion of the stomach with dilatation. There was adhesion to the abdominal wall and under surface of the liver. Ferrier performed a similar operation on a woman sixty-two years of age for adhesions on lesser curvature to liver and abdominal wall.

Mikulicz reports several cases of gastrolysis and also eight in which the infiltrated portion of the stomach wall and the ulcer were resected — all successful.

Finally there remains the so-called hour-glass stomach produced by cicatricial stenosis in the continuity of the stomach.

There are two operations suited for the relief of this condition. The first of these is gastroplasty analogous to pyloroplasty. The second is a gastro-anastomosis, which consists in the junction of the two halves of the stomach through a wide opening. A striking example of this method was the most successful operation of Watson.

The following case of perigastritis was treated by the operation of gastrolysis. The opportunity of operating upon and reporting the case was kindly given me by Drs. Anthony of Bradford, and Clarke of Haverhill. The operation was performed at the Haverhill Hospital with the assistance of Drs. G. C. Clement of Haverhill and my assistant Dr. R. B. Greenough.

The patient, Joseph T. C., married, aged forty-one, was a French Canadian. Little is known about his family antecedents. As a child he had measles and whooping-cough and also croupous pneumonia. He had gonorrhea ten years ago and made a good recovery. Is addicted to a moderate use of alcohol.

He has had chronic dyspepsia and constipation for many years and at certain intervals of time he suffered from paroxysmal attacks of pain in the epigastric region, lasting a few hours.

Some of these attacks were very severe and he is said at these times to have lost consciousness.

There was no history of his having passed any blood in the stools or having vomited blood. No attacks of jaundice at any time.

Two days before entering the hospital on February 18, 1898, he was suddenly seized with great pain in the region of the gall-bladder while at work.

[3] Harvard Physiological Laboratory.

The patient fell in great agony, was carried home and later to the hospital. The pain lasted for several hours.

On examining him February 25th, I found a rather emaciated individual of sallow complexion complaining principally of dyspepsia. A tumor existed in the right hypochondrium at the margin of the cartilage of the ribs. On palpation it was hard and ill-defined and seemingly attached to the abdominal wall. There was also dulness on percussion. There was also some pain in the right lumbar region. An examination of the urine was negative.

An incision five inches long was made parallel to right costal cartilages and about one inch from them. On dividing the abdominal parietes a thick exudation of yellow lymph was observed, beneath which lay the liver, which was thus firmly attached to the parietal peritoneum. On breaking away these adhesions, the edge of the liver could be drawn up exposing the gall-bladder similarly imbedded in light adhesions. Beneath the gall-bladder, which appeared to be normal, there was more extensive exudation in the centre of which the pylorus was imbedded. On its anterior wall was a layer of partly organized blood-clot about one-quarter of an inch in thickness and one by two inches in dimension. After these adhesions had been broken up palpation failed to detect anything abnormal in the interior of the stomach or duodenum. There was no marked dilatation. After careful walling off with gauze an incision about two and a half inches in length was made in the stomach near the pylorus through which an exploration was made. No ulcer or induration was felt in the stomach, but a cicatricial band at the lower margin of the pyloric orifice narrowed that outlet somewhat so that the forefinger could only with some care be pushed through the constriction. This opening was gradually stretched so as to admit the ring-finger tip. The wound in the stomach was then closed with Lembert sutures. The abdominal wall was closed except one stitch, which was not tied so as to allow a small gauze drain to remain in. The gauze was removed on May 1st and the wound closed. Healed by first intention. The patient was fed on nutrient enemata. Bowels moved on May 4th. Temperature normal since operation. On May 17th semi-solids were given by the mouth. The following week the patient received light house-diet, which caused him no pain or discomfort, and he was discharged "cured" on May 24th.

In order to determine the future of cases of ulcer (and dilatation) of the stomach which have received hospital treatment, Dr. Elliott P. Joslin and Dr. R. B. Greenough have kindly undertaken to obtain for me the histories of 247 cases after they had left the hospital. This group embraces all cases treated at the Massachusetts General Hospital between the years 1888–1898. It is, therefore, practically a study of these cases for an average of five years after leaving the hospital, and gives, therefore, what is equivalent to end results in a large number of cases. Although from an examination of the Hospital Records it would appear that only 43 of the 187 cases of ulcer were discharged from hospital in any other condition than "well" or "much relieved" (22.8 per cent.) it is seen from these statistics that 54 cases in 110 in which we have been able to obtain reports were not permanently relieved by their treatment. Probably, a similar examination of Leube's cases, referred to above, might show less favorable results than he reports.

Of the 187 cases of ulcer, the following came under the head of those probably suitable for operation:

Perforation	6 (1 operated)
All died (1 of renal disease).	
Hemorrhage	5 (3 operated)
Cancer developed	3
Stenosis with dilatation	13
	27 or 14 per cent.

This list does not include cases of relapse after treatment, of which there were 39.

Of the 37 cases of dilatation that reported, 28 cases or 76 per cent. were not permanently relieved. Of the 60 cases of dilatation those probably suited to operation were

Deaths from cancer	7 (0 operated)
Not cured	18 (1 operated)
	25 or 41 per cent.

Doubtless as our knowledge of the conditions which develop during this disease becomes more thoroughly crystallized, it will be found that a much larger proportion of the cases than is supposed are not amenable to medical treatment, and that symptoms may be relieved and future complications prevented by a surgical operation.

OBSERVATIONS UPON STONE IN THE BLADDER; RECURRENCE OF STONE; CHOICE OF OPERATION.

BY A. T. CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

THE cases which I have used in this study of the recurrence of stone in the bladder comprise all of those of which I have notes. I find in these notes that I have done one hundred and thirty-five operations upon one hundred and nineteen patients. These operations divide themselves into one hundred and fifteen lithotomies with four deaths. Thirteen suprapubic lithotomies with four deaths. Three lateral lithotomies with no deaths. Two median lithotomies with one death. Two vaginal lithotomies with no death.

This list only includes cases of formal operation under anesthesia and takes no note of the many instances in which a crushing and pumping operation has been done with or without cocaine for the removal of small recurrent stones or for retained fragments.

Among these patients are two instances in which a uric-acid stone has re-formed in consequence of the persistence of the diathesis that led to its original formation. On one of these patients I operated twice and upon the other three times.

There are nineteen instances in which a phosphatic stone has appeared some months or years after the removal of a primary stone. In two or three instances the primary stone was a uric-acid calculus, in all other cases it was phosphatic.

In six of these cases the previous operation had been done by some other operator.

This recurrence of a phosphatic stone may be due to the persistently alkaline condition of the urine. Several instances of this sort have come to my notice, the most striking of which was a case of multiple calculi in which within a fortnight of a thorough washing out the bladder would again contain from fifty to one hundred little, separate, well-formed stones. This tendency was finally overcome by frequent pumping out of the calculi combined with medical treatment directed to making the urine acid.

While phosphatic stones may occasionally depend in this way simply on the condition of the urine, it is much more common to see them as the result of some local condition. In two or three cases the recurrence may perhaps be regarded as the result of an incomplete operation, leaving a fragment to serve as a nucleus for a new stone. This accident has usually been avoided by care in washing out the bladder with the evacuator, ten days or a fortnight after the litholapaxy. In some such cases several washings have been necessary before the bladder was found to be entirely free from calcareous matter.

In one case, of a woman, the projection into the bladder of two stitches put in by two other surgeons for the closure of the opening made in doing a vaginal lithotomy led to the repeated recurrence of calculi until the stitches were found and removed.

In two cases sacculated stones which lay concealed in pockets in the vesical wall gave rise to repeated stone formation in the bladder cavity. The removal of the stones loose in the bladder was followed in each case by such a cessation of symptoms that the presence of the encapsulated calculus was not suspected, but it was finally found by a cystotomy done for the purpose of discovering the condition to which the recurrence of the stone was due.

Finally, certain local conditions of the bladder wall favor the formation of stone and lead to constant recurrences until they are removed.

It is notorious that tumors and granulating surfaces within the bladder are prone to be encrusted with salts. The crystallography of stone formation is interesting in connection with these cases of calcareous deposit on granulating surfaces.

The crystals that exist in the urine do not tend to cohere and form a stone except in the presence of albuminous material. Rainey showed many years ago that the presence of colloid or albuminoid substances in a solution causes crystalline materials to become spheroidal in shape and to coalesce in rounded form. This is the law of molecular coalescence which has a very decided bearing upon stone formation in the bladder.

As long as the urine is non-albuminous, crystals of uric acid or oxalate of lime may form in the urinary passages, be washed along and discharged with the urine without forming a stone. But when albumin is present, either in the pus thrown out in consequence of some irritation or in the serum exuding from a granulating surface, we have conditions favorable to "Molecular Coalescence."

The following case is an interesting illustration of this method of stone recurrence:

M. V. B. M., fifty-six years of age, came to see me in the autumn of 1894, with considerable irritation of the bladder for which he was using the catheter by a physician's advice. At this time the symptoms did not strongly suggest a stone and the searcher could not be introduced on account of the extreme sensitiveness of the neck of the bladder. Palliatives were advised with resort to an ether examination if the symptoms persisted. He was seen again nine months later and the symptoms were then so suggestive of stone that he was etherized and a soft stone was crushed and pumped out. This calculus was so small that it seemed as if it must be of recent origin.

The operation was an easy one and during convalescence it was found that the bladder emptied itself almost completely at each urination. Six weeks after this operation the bladder was pumped out thoroughly without ether and a small amount of calcareous matter removed.

Five months later he again had symptoms of stone and another phosphatic stone was removed by litholapaxy. This operation was done at the Massachusetts General Hospital and he was kept in the hospital for more than three weeks during which time his bladder was carefully pumped out several times and entirely cleared of calcareous matter. He went out with the urine clear and acid. Soon after, however, it became evident that the stone was forming again. The constant reappearance of phosphatic stones in a bladder which completely emptied itself and in a urine which was never excessively alkaline seemed to indicate that there was some special cause for the deposit of calcareous matter. The patient now decided to submit to a suprapubic cystotomy for the purpose of discovering and, if possible, relieving the condition that so favored the recurrence of stone formation.

The bladder was accordingly opened. Its wall was found in a tolerably healthy condition and the prostate was not markedly enlarged and the post-prostatic pouch was not deep. Just posterior to the prostate and midway between the ureteric orifices was a little prominent tumor with a roughened surface somewhat encrusted with lime salts. This was seized with a pair of cutting forceps and easily removed. Examination of this tumor by Dr. W. F. Whitney showed it to be a little myoma with an ulcerated granulating surface.

Since that operation, done two years ago, there has been no return of stone symptoms and the patient has now gone to the Arctic regions in command of a whaling ship.

This case was a striking one because the stone formed in an acid urine and in a bladder that emptied itself at each urination. These facts forced us quickly to the belief that some local condition was responsible.

In many cases of enlarged prostate we have a similiar condition of ulceration on projecting outgrowths. I find among my cases five in which such a condition was demonstrated either by operation or autopsy. Doubtless other cases of recurrence were due to a like cause but were finally overcome by keeping the urine acid and by irrigation with solutions of nitrate of silver and nitric acid to favor healing of the ulcerated patches.

It has frequently been urged by advocates of cutting operations that recurrence of stone is especially prone to occur after litholapaxy owing to incompleteness in the operation. My experience does not coincide with this view; for the cases of recurrence after litholapaxy have, with one or two exceptions, been shown to be due to a general diathesis or to the local conditions described above. The suprapubic operation, too, is far from being exempt from the opprobrium of failure to prevent recurrence of calculous formation. I have seen three instances of stone recurrence after suprapubic removal. One patient had an experience which was interesting in this connection. He had a stone removed suprapubically in 1892. He had a second stone removed by suprapubic incision in 1895. In 1896 he had a stone removed by litholapaxy and after that he had small stones removed by Chismore's evacuating lithotrite without anesthesia about once in three months. He finally consented to have the bladder opened a third time for the removal of

the third lobe, which was believed to be ulcerated. The condition suspected was found and removed. This case has been reported at length elsewhere and only so much of it is repeated as has a bearing upon the question of stone formation.

The conclusion that I would draw from the study of these cases of recurrence is that the constant reappearance of a phosphatic stone in the bladder usually indicates the existence of some local cause which should be sought and removed.

The suprapubic route affords the best opportunity for inspection and for the operative treatment of any condition found. When that condition is an ulcerating projection from the prostate it should be thoroughly removed and the lower edge of the urethral opening should be so cut down as to bring it well to the floor of the bladder.

RATE AND CAUSES OF MORTALITY. CHOICE OF OPERATION.

It is also of interest to study in these cases the rate of mortality and the conditions under which death occurred. Comparative rates of mortality, however, cannot be judged, as the number of cases in which a cutting operation was done is small and the cases selected for lithotomy were, in several instances, in a serious condition, owing to prostatic obstruction and advanced inflammatory conditions of the bladder and kidneys. The operation, too, was often not a simple cystotomy but included the removal of a portion of the prostate or the difficult extraction of an encysted calculus from its pocket.

The patients were as a rule old. The average age of those upon whom litholapaxy was done was sixty years and a month. This is calculated from ninety cases in which the age is recorded. My recollection of the cases in which the age was not recorded enables me to say with confidence that they would not have materially altered the average age above obtained.

The average age of those subjected to suprapubic cystotomy was a little over sixty-two years.

Two of the four deaths after litholapaxy were due to pneumonia consequent upon a chronic bronchitis that existed at the time of operation. These patients were feeble men, one sixty, the other sixty-nine years of age. The third patient was seventy-one years of age and had complete obstruction in the prostate, and the urine was suppressed, so that the contents of the bladder at the operation consisted almost wholly of stringy mucus, and he never secreted any urine after that time.

The fourth case was that of a woman sixty-two years of age. A hard stone weighing a little over an ounce was removed by litholapaxy and at the same time some glands in the neck, which were extensively tuberculous, were curetted. The patient did very well for a time. The temperature fell to normal and recovery seemed assured, when she gradually began to fail and died six weeks after operation, death being due rather to the tuberculosis than to the operation.

Not one of these deaths can be directly ascribed to the operation. But even if they are all counted as deaths from litholapaxy the rate of mortality would be a little less than three and one-half per cent., which is very low considering the advanced age of the patients.

Certainly this experience justifies the feeling that litholapaxy is the operation of choice which can be offered to these patients as comparatively devoid of risk.

The suprapubic operation would then be reserved for those patients in whose bladders other conditions (foreign body, sacculated stone, ulcerating projections) exist which require an opening into the bladder for their proper treatment.

Of the four deaths after suprapubic cystotomy two occurred in old men of seventy-two and seventy-seven years, in whom a great diminution of urine existed at the time of operation and a progressive cessation of this function steadily progressed till the time of death.

One old man of seventy-two with an abundant urine of 1.005 specific gravity was operated by suprapubic section on account of sudden profuse hematuria. A very small stone was found and the bleeding was wholly stopped, but although the wound did extremely well he presently became mildly delirious and died uremic.

The last case was that of a man of sixty-one who had a sacculated bladder, two diverticula of which contained stones. These diverticula were on each side close to the ureteric orifices and so placed that the stones pressed upon the ureters and occluded them. One of these stones, which projected into the cavity of the bladder, was found and removed. The other one, which lay at the bottom of the deep, narrow pocket with a very minute opening into the bladder, was not found. This patient lived about a month after the operation and slowly died of suppression of urine due to pyelo-nephritis.

The death after median lithotomy was in the case of a very feeble man who had been leading a very exhausting life as a missionary in a hot climate and who, on his voyage home, had a small stone become wedged in his prostatic urethra leading to great and constant tenesmus and much inflammation at the neck of the bladder. The operation really consisted rather in a prostatomy than a cystotomy, and the patient slowly died of septic conditions in the wound, probably started by the inflammatory conditions which existed before the operation.

All of these deaths after cystotomy were in bad subjects and might, in almost every case, be said to have occurred in spite of the operation rather than in consequence of it. Still it is my feeling that two or perhaps three of these patients might have survived a litholapaxy had that operation been possible.

Some years ago I expressed the opinion that litholapaxy should be the operation of choice in the treatment of stone in the bladder and that a cutting operation should be resorted to only under special conditions, then enumerated, which made the crushing operation impossible or especially difficult and dangerous. My added experience of about one hundred cases confirms me in my feeling that litholapaxy is much the safest operation for the removal of stone and that it is usually competent to work a complete cure.

In cases where it fails of cure a further search for the cause of repeated stone formation should be made — by suprapubic cystotomy when necessary. If before operation we have good evidence that a local condition exists which favors calcareous deposits this may be a sufficient reason for selecting a suprapubic operation at the outset. Certainly in a case of aggravated prostatic obstruction demanding relief from that condition a suprapubic operation is demanded, and the coincident presence of a stone, while aggravating the

symptoms and increasing the need of relief, does not in any way affect our choice of operation, which is directed at the more important and fundamental condition.

Clinical Department.

COMPLETE TORSION OF THE WHOLE OF THE SMALL INTESTINE.

BY JOHN HOMANS, M.D.,
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THE records of all cases of intestinal obstruction are instructive, because the diagnosis is difficult and the effects of the disease sudden and alarming. The extreme rarity of the case narrated below warrants the writer in putting it on record.

A complete torsion of the small intestine is as hard, or harder, to explain than one of an ovarian or uterine tumor. We meet with, not uncommonly, twists of loops of intestine as causes of obstruction, but a complete twist of the whole small intestine on its mesentery as an axis was something unknown to me up to the time of the case to be described, and I have only heard of one similar case since.

Agnes D., age seven, had measles in January, 1893, and had suffered from bronchitis ever since, that is, for three months. On March 24th she came home from playing complaining of pain in her stomach. Her bowels did not move and she ate no supper. On the 25th she swallowed a little cocoa for breakfast and seemed pretty well, but in the afternoon again complained of severe pain in her stomach. She was given Castoria. She vomited during the afternoon and evening. On the 26th she vomited again, and kept her bed. Dr. F. B. Harrington saw her and found considerable distention, tympanites and tenderness at the epigastrium; he sent her to the hospital.

On entrance she was weak and cyanotic. Her abdomen was markedly distended, tympanitic in the centre and flat in the flanks. A band was apparently felt in the left inguinal region, irregular in shape. By rectum, a hard mass was felt filling the posterior cul-de-sac. There was evidently ascitic fluid causing the dulness.

The diagnosis was acute intestinal obstruction, probably intussusception. Operation March 29th. Incision at first two and a half inches long in the linea alba. A little dark-colored fluid escaped when the peritoneum was opened. The small intestines protruded, much distended and of a dark purple color. On pulling them out there was seen at one point a diverticulum about one and a half inches long and a quarter of an inch in diameter at the base, and of a sickle shape.

At the base of the diverticulum and extending round the bowel was a constriction, gray in color, as if the bowel were being cut through by a sharp ligature. On further exploration the entire small intestine was found twisted at its mesenteric root from right to left, and this accounted for the color of the bowel and for the ascites. I lifted up and untwisted the intestines, and the sharp edge of the twisted portion flattened out as the twist was unwound. The mesenteric glands were everywhere much enlarged. The intestine was aspirated in order to make its return to the abdomen possible. Considerable gas and fluid feces were withdrawn. The bowels were returned with much difficulty, the incision in the parietes was closed with silkworm-gut sutures and a glass drainage-tube was put in.

After being placed in bed the temperature was 101.8°, pulse 148, respiration 20. She vomited at intervals and died on the 20th, about twenty-four hours after the operation.

Autopsy by Dr. W. F. Whitney. Abdomen alone examined. Intestines all glued together by soft flakes of lymph and pus but no free fluid in cavity. Intestines more or less discolored from ileum to jejunum, and in one place the peritoneum had been torn off and beneath this spot the intestine was slightly gangrenous. About three feet above the ileo-cecal valve was a small diverticulum, and near this a circular necrosed patch of mucous membrane. A little above this was another circular necrotic patch. In the other organs nothing abnormal was found.

DIAGNOSIS.

Acute peritonitis. Necrosis of intestines probably resulting from a twist.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

CARDIAC DISEASE AND PREGNANCY.

J. LOOFF[1] would interrupt pregnancy in cardiac disease only when the compensation is disturbed. In other cases by careful diet, rest and the use of cardiac tonics in appropriate instances, the patient will go through pregnancy and labor in a satisfactory manner. In mitral disease the heart is most apt to fail during the second stage. In aortic disease the dangerous period is just after delivery, when the circulatory conditions have been altered. It is necessary, therefore, to give cardiac stimulants at this time and closely watch the action of the heart.

CLINICAL REPORT OF THE ROTUNDA LYING-IN HOSPITAL FOR THREE YEARS, FROM OCTOBER 1, 1893, TO OCTOBER 31, 1896.[2]

The master, Wm. J. Longly, and his assistants, H. Wilson and H. Jellett, present an interesting report of this famous hospital, where 4,006 cases of midwifery occurred during the three years, and 6,273 other cases were delivered at their homes, or a total of 10,279 cases.

Of the 4,006 patients delivered in the hospital, 14 died, or 0.374 per cent.; only one death occurred in the last year. Six of these deaths were due to septicemia, six to kidney disease, one to hyperemesis and one to aortic valvular disease when three months pregnant.

There were 20 cases of *prolapse of the funis*. Eight children were still-born, in three of whom the cord was pulseless when discovered, and one of these children was macerated. All the mothers recovered.

There were 134 *abortions*, with two deaths. The preventive treatment of abortion was limited to rest in bed, hydrastis canadensis for hemorrhage, and opium for pain. When hemorrhage was severe, it was found, with one exception, that the os was suf-

[1] Cincinnati Lancet-Clinic, June 29, 1898.
[2] Dublin Journal of Medical Sciences, April and May, 1898.

ficiently dilated to remove the ovum. The plug was never employed where any portion of the ovum had escaped; in such cases, after waiting half an hour, if the remainder was not expelled spontaneously it was removed. In 11 the finger was introduced to detach portions of the ovum, and 50 were curetted.

Of three cases of *hyperemesis*, all of which terminated fatally, in two, large white kidneys were found, in the other the organs were healthy. Labor had been successfully induced in this case.

There were four cases of *brow* presentation: two terminated as such, one was changed into a face, and the fourth was converted into a vertex.

The *breech* and *lower extremities* presented 125 times: forty-one children were still-born, 12 of these being macerated. Only once were forceps used to the after-coming head.

There were 45 twin births and one case of triplets. There were 31 cases of *placenta previa* with the remarkable result of the recovery of all the mothers; 22 of the children, however, were born dead. In four cases no treatment was required; in five, rupture of the membranes was sufficient; in 20 a foot was brought down and delivery left to the natural efforts. In order to bring down the foot in 18 of these cases, version was necessary — in two external, in two internal; and in 14 bipolar version was performed. One case was delivered with forceps.

There were 20 cases of *accidental hemorrhage*, eight of which were severe. In 12 cases nothing was required to check the hemorrhage beyond a hot douche and rupture of the membranes. In four the vagina was plugged, in three version was performed, and one was delivered with forceps. All recovered.

There were 49 cases of *post-partum hemorrhage*, 28 of which were moderate and 21 severe; 41 were due to uterine inertia, seven to laceration of the soft parts and one to a combination of both causes. Of the atonic cases, 10 were controlled by external manipulation and ergot, six by the hot douche; in 24 the hand was introduced to remove the placenta, membranes, or clots; three were plugged, including a case of uterine inertia with a deep cervical laceration; two were infused with saline solution.

Rupture of the uterus occurred in one case, the laceration being in the lower uterine segment and cervix. The placenta, having escaped through the rent, was removed by the hand from the abdominal cavity; a strip of iodoform gauze was passed through the tear and left there two days. The next evening the temperature fell to normal from 101° and continued so until the patient's discharge well two weeks later.

There was one *ovarian tumor* and seven *myomata*; and, in one of the latter, the child was successfully removed by Cæsarean section together with the tumor.

Of *deformed pelvis* there were 21 cases, two of whom delivered themselves; one in which the child, presented with breech, required manual assistance; four were extracted with forceps, once the instrument was applied before the head had passed the brim, and three times for secondary inertia after it had entered the pelvis; nine were delivered after induction of premature labor; three by craniotomy, one by symphyseotomy and one by Cæsarean section. Two mothers and seven children died.

The *forceps* were used in 117 cases, or once in 34 deliveries.

Version was performed 42 times: 12 times for shoulder presentation, 18 times for placenta previa, twice for accidental hemorrhage, twice for pelvic deformity and eight times for prolapse of funis.

There were nine cases of *eclampsia*. Three of the mothers and four of the children died; two of them died undelivered. The treatment consisted in these cases in milk diet and large doses of morphine subcutaneously, labor being left to itself, except in one case where forceps were used.

EARLY PREGNANCY AND LABOR.[3]

Dr Simon Marx [3] reports a case of a girl, fourteen years and six months old, whom he delivered with forceps of her first child at full term, after an inefficient labor of forty-eight hours, with eclampsia. The patient was but a child with undeveloped mammæ, mons veneris devoid of hair, and the pelvic contour typically infantile. The infant weighed less than six pounds.

INCARCERATED RETROFLEXED PREGNANT UTERUS WITH ENORMOUSLY DISTENDED BLADDER.[4]

William Simpson [4] reports a curious case of this difficulty where the retention of urine was apparently the cause of the retroflexion of the uterus. A single woman, thirty-two years of age, complained of great pain in the abdomen, which was much distended. She had had trouble with micturition for two weeks and for three days had been unable to pass urine, only a very small quantity having escaped voluntarily. She was found to be three months pregnant, with a retroflexed uterus, and from the bladder 196 ounces of urine were withdrawn. On the next day the patient passed 43 ounces of urine naturally and 77 ounces were drawn off by the catheter. The uterus returned to normal position; after this micturition occurred normally.

THE LITHOTOMY POSITION DURING PARTURITION.

Oscar Schmidt [5] recommends this position when the fetal head is in the canal or at the outlet. With the patient lying on her back, the physician and nurse, as soon as the pain begins, each grasp a leg, flex the knees strongly and press them as far as possible upon the abdomen, at the same time keeping the limbs rotated outward and abducted. The labor is said to be finished more rapidly and with less exertion on the part of the patient. The reasons for this are twofold: first, increased abdominal pressure, and second, the widening of the pelvic outlet owing to the mobility of the sacro-iliac synchondroses, which is increased in pregnancy. This position, however, diminishes the conjugate of the inlet of the pelvis, which is increased in Welcher's position with slightly hyper-extended thighs, the legs hanging over the edge of the bed.

PLACENTA PREVIA.

Robert Jardine [6] tabulates fifty-one cases of placenta previa, all but two of which were private cases occurring at the Glasgow Maternity Hospital in the last sixteen years. Twelve of the cases were complete central placenta previa and 39 lateral. Of the former two mothers died and 10 were saved, while of the children five were born alive (one case being twins)

[3] American Gynecological and Obstetrical Journal, January, 1898, p. 38.
[4] Lancet, May 21, 1898, p. 1396.
[5] Centralb. f. Gyn., November 27, 1897.
[6] Glasgow Medical Journal, January, 1898, p. 11.

and eight dead. Of the lateral, three mothers died and 36 were saved, while of the children 15 were alive and 24 dead. The total number of mothers lost was five, or slightly under ten per cent., of children 32, about 61 per cent. At least two of the children were macerated, while several were too premature to live. The presentations were as follows: Cranial, 43; transverse, 3; breech, 2; hand, 1; leg and arm, 1; elbow, 1. The treatment adopted was: Podalic version, 36; bipolar version, 3; forceps, 4; traction on breech, 2; and six were born by natural efforts. The tampon was used nine times, but in many of these cases it was used more as a safeguard to prevent hemorrhage while removing the patient to hospital than as a dilator. Barnes's bags were used nine times; manual dilatation was the principal method, combined with separation of the placenta when necessary. In a few cases rupture of the membranes was all that was required. Post-partum hemorrhage occurred in six, one being secondary, on the twelfth, thirteenth and fourteenth days. The vast majority of the patients were multiparæ, but six of them were primiparæ. The youngest of them was nineteen, while the remaining five were what might be called elderly primiparæ, aged 28, 28, 30, 34 and 35 years. The youngest multipara was 19 (ii-para) and the oldest 45 (xiv-para). One had had placenta previa once before, and another twice. The latter had also cardiac disease.

CONCEALED ACCIDENTAL HEMORRHAGE.

Robert Jardine[7] reports four severe cases of this affection that he had seen in the Glasgow Maternity Hospital within a year — two of these died. All of the children were premature, two were born dead, one lived a week only, the other was saved.

As to etiology, the writer has found the placenta always more or less degenerated, an endometritis probably being present. A perfectly normal placenta might become detached as the result of a severe accident, but this is exceptional.

Diagnosis. — The external variety may be mistaken for placenta previa. If the os is not dilated this difficulty is very great, but usually the os will admit of the placenta being felt in placenta previa. A boggy feeling in the fornices will also indicate the latter affection. The concealed variety can usually be easily diagnosticated by the collapsed condition of the patient, the great distention of the uterus, and the nature of the pain she complains of. Rupture of the uterus gives somewhat the same collapsed condition, but it occurs as a rule in the second stage of labor.

Treatment. — The writer does not agree with those who advocate plugging the vagina in external hemorrhage. In one of his cases this was adopted and the hemorrhage was converted into an internal, concealed one and proved fatal. When active hemorrhage is going on he believes the only thing to be done is to empty the uterus. If the bleeding has ceased and the patient is not collapsed, he advocates waiting and watching. If she is much collapsed she should be stimulated before delivery, as the shock of delivery may prove fatal even without any post-partum bleeding. In internal concealed hemorrhage he has found the results of *accouchement forcé* far from encouraging. Rupturing the membrane has been recommended by some, but the escape of the liquor amnii would only make more room for hemorrhage, as the uterus would not be able to contract. Porro's operation has been done with success and seems rational; he would recommend before a Porro or *accouchement forcé* the transfusion of a pint or two of saline fluid, repeated if necessary afterwards.

[7] Glasgow Medical Journal, January 1898, p. 21.

THE CHANGES IN THE UTERINE MUCOSA DURING PREGNANCY AND IN THE ATTACHED FETAL STRUCTURES.

J. C. Webster[8] in an elaborate article, for which he received the first Research Prize of the Royal College of Physicians of Edinburgh, shows that in the early months of pregnancy when a complete abortion occurs not associated with any inflammatory changes in the uterus, the plane of separation of the ovum is mainly through the compact layer of the serotina and vera in its middle or outer layer; in certain parts the whole compact layer and bits of the spongy portion may be shed.

In later months, when a complete miscarriage occurs, the separation plane is, also, mainly through the compact layer, only here and there are the whole layer or parts of the spongy portion removed. In the late months of pregnancy and at full term, the plane of separation is, also, mainly through the compact layer; but owing to the thinness of this layer, it happens more often than in early months that separation takes place as well through the junction of compact and spongy layers, as through the outer part of the latter. The thickness of that part of the compact layer found on the removed placenta varies somewhat, because in the preparturient condition considerable variations are found in the degree of development of the whole compact as well as of the spongy layer.

The body of the uterus, after complete delivery of the ovum, has still attached to its inner surface the main thickness of the decidual tissue which was present before labor began, though it is completely rearranged owing to uterine retraction and contraction. His observations, then, tend to confirm the statement of Friedländer, who, many years ago, stated that the plane of separation was usually found in the compact layer. The credit of having first described the post-partum uterus as being lined by a layer of decidua probably belongs to William Hunter. Cruveilhier, Heschl and others wrongly taught that the entire muscular wall was laid bare. The writer has shown this takes place, in normal cases, only to a very limited extent.

[8] American Gynecological and Obstetrical Journal, November and December, 1897.

THE TREATMENT OF ASPHYXIA NEONATORUM BY THE HYPODERMATIC INJECTION OF STRYCHNIA.

Henry D. Fry[9] states that the average annual stillbirths in the District of Columbia are 500, an infantile mortality of about nine per cent. He recognizes three classes of asphyxia:

First, those due to maternal disease, as syphilis, nephritis, arterio-sclerosis, and acute intercurrent diseases of pregnancy.

Second, intrauterine asphyxia, as from coiling or twisting of the cord around the fetus; short cord, premature separation of a portion of the placenta, whether previa or normally implanted, direct violence, and ergotism.

Third, asphyxia occurring during labor, from pro-

[9] American Journal of Obstetrics, April 1898, p. 470.

lapsed or twisted cord; from compression of the fetal head by the forceps or pelvic walls; breech presentations, and tetanoid contraction of the uterus.

The writer outlines the various methods to be used in the treatment of asphyxia and emphasizes the point that cases of pallid asphyxia should be treated as if they were in a condition of shock, which he says is the case. Rough measures will only extinguish the spark of life.

The indications are, first, to apply external heat; this is best done by immersion in water at a temperature of 100° F. Second, stimulate the respiratory centre, the flagging circulation, the paralyzed muscular system, and abolished reflexes. For this he believed there is nothing so valuable as hypodermic injections of strychnia in doses of one two-hundredth grain. Its use for such purpose was suggested to the writer's mind eighteen months ago, and the result has more than met his expectations.

After the administration of the strychnia accessory methods of treatment may be employed. Artificial respiration may be carried on while the child is in the hot bath. Sylvester's or Drew's method answers best under those circumstances. Jacobi has advised the rectal injection of hot water, and Grandin of hot normal salt solution. The latter might be given more effectively by injection into the subcutaneous tissue or directly into the vein.

DELIVERY THREE YEARS AFTER SYMPHYSEOTOMY.

Hausen[10] reports a case showing that the increased pelvic diameters after symphyseotomy may remain permanent. A woman, thirty-six years old, gave the following history: First labor, instrumental, still-born child. Second labor, ineffectual, symphyseotomy, separation of symphysis six centimetres, forceps delivery. Good recovery, the patient returning to work. Three years later version was performed at full term, the child being in transverse position. This was followed by the spontaneous expulsion of the child. During delivery of the child the symphysis separated to the extent of three centimetres, thus largely increasing the diameters of the pelvis. This delivery also left no bad after-results.

ECLAMPSIA.

Edward P. Davis[11] calls attention to some points regarding eclampsia after relating two cases of the same. It seems clearly demonstrated, he says, that toxins of unknown composition cause eclampsia. These bodies are not found in the urine of eclamptic patients during eclampsia, nor are they found in great quantities in any urine. If they were present in the urine the patient would not have eclampsia. The percentage of urea is, however, of value as a clinical index of the amount of waste successfully excreted. When this is reasonably high the patient is not forming from it within her body poisonous compounds. That eclampsia can be prevented by regulating the diet of the pregnant woman and stimulating her excretions is a fact too familiar to require comment. An eclamptic patient can be made to excrete by the use of the hot pack, and saline injections into the skin and bowel. Such treatment, if faithfully carried out, may save the patient from eclampsia; but if her tissues have been seriously damaged by the poison, she may recover from convulsions only to die from pulmonary gangrene or failure of the nervous centres. In these cases veratrum viride seems of decided service.

As regards prognosis, the youth of the patient, her freedom from alcoholism, gout or previous kidney failure are important factors. With an eclamptic patient each half hour that passes without vigorous treatment is greatly to her disadvantage.

[10] Rev. Mens. des Mal de l'Enf., February, 1898.
[11] American Journal of Obstetrics, April, 1898, p. 476.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR meeting, Monday, May 16, 1898, the President, DR. R. H. FITZ, in the chair.

DR. J. C. WARREN read a paper on

THE SURGERY OF GASTRIC ULCER, WITH REPORT OF A CASE OF GASTROLYSIS.[1]

DR. BEACH: I am wholly in sympathy with Dr. Warren in all that he has said relative to stomach surgery. His simile of the distended bladder from prostatic obstruction is especially apt and appeals strongly to the surgical instinct. In the application of surgical measures to ulcer of the stomach, the five conditions demanding consideration are:

(1) Pain; (2) Hemorrhage; (3) Exhaustion; (4) Cicatricial contraction; (5) Malignant disease succeeding chronic ulcer.

The medical treatment of chronic ulcer has met with marked success in a large percentage of cases and supplies a strong argument against operative interference. On the other hand, we are all familiar with a group of exceptions that in spite of such treatment drift on to the shoal where surgery can only exhaust the little strength and vitality remaining to the sufferer.

The practical difficulty is to know when to interrupt medical treatment without sacrificing its advantages. As Dr. Warren suggests, this must be determined by the necessities of the individual case and not by the application of any general law.

The fighting-ground of the surgeon is clearly defined by the cases that are to die of perforation or hemorrhage. The proportion of the former, three and one-half per cent., and of the latter 13 per cent., averaging together 17 per cent. or more, require a recognition of their fatal tendency before the steady failure of power and the persistence of exhaustive symptoms have depleted the patient beyond the point where surgery can afford relief.

Close observatibn and rare judgment must be exercised in the determination of that point for the symptoms may fail to indicate in some cases the extent of disease.

In my own experience I remember a patient who entered the hospital without a symptom referable to the stomach. He died soon after admission and before a complete investigation had been made of his case. The autopsy disclosed a large ulcer opening from the greater curvature of the stomach into the large intestine and protected by adhesions between the organs.

The justification for surgical interference rests on

[1] See page 308 of the Journal.

the persistence of symptoms after all efforts for relief have failed.

The early breaking-down of adhesions and the union of wounds after stomach operations subjects the patient to the most disastrous consequences. Too much stress, therefore, cannot be made upon the importance of avoiding prolonged starvation. Rectal feeding rarely takes the whole place of stomach feeding. For those who must depend upon its help *after* operations, it is prudent not to wear out the tolerance of the intestine to injections, or the power of assimilation *before* operation. In stenosis of the pylorus, where little or no food passes into the intestine and its accumulation in the stomach must be relieved by lavage, rapid depletion by starvation again may, if prolonged, equal excessive hemorrhage in robbing the patient of reparative power. Though a carefully conducted exploration in anticipation of a perforation is really a conservative measure, we cannot forget that another reason for prompt action is that before perforation has made the way clear to the seat of disease, so much manipulation may be requisite as to compel a large demand upon the patient's strength and endurance. Loretta's operation seems to be fairly displaced by that of pyloroplasty. The advantage afforded by the latter for inspection of the parts, freedom from recurrence of stricture, from concealed hemorrhage, and the slough which may follow a divulsion of the pylorus, commend it strongly while the earlier operation may be still retained for stenosis of the cardiac opening of the stomach until replaced by some better method.

The relief to be obtained from the careful dissection of adhesions and cicatricial bands is a subject that received discussion in this Society about one year ago in connection with gall-bladder surgery. Such adhesions to adjoining parts are not unusual as we know in all abdominal surgery, but in the region that has the gall-bladder for a centre they are especially troublesome in the production of pain and discomfort. It is astonishing to know what permanent relief may follow such dissections when the same conditions that originally caused the symptoms appear to be left, that is, the apposition of inflamed surfaces.

I have expected to find in some case the pylorus drawn down by adhesions so as to kink that end of the stomach and produce obstruction, but so far it has not occurred in my work. I have dissected adhesions extending toward the stomach from the gall-bladder toward the anterior abdominal wall deeply in the direction of the pancreas with satisfactory results.

DR. CUTLER: I have been very much interested in hearing Dr. Warren's paper and he has left absolutely nothing to be said as far as the indications are concerned for operation in these cases. I should like to say a word about the statistics of Leube he speaks of. Leube is exceptionally situated to form statistics. In the first place, he has an admirable clinic, has assistants trained for a long time in this sort of work, and I think his statistics would be better than those from the general hospitals such as ours, or from the general practice of most people about here.

As far as the operations for gastric ulcer are concerned it has been seriously proposed by one surgeon that instead of the medical treatment of gastric ulcer the operation of excision should always be done because the disease was thereby curtailed, shortened up. Of course nobody here would think of being so radical in procedure as that, but in cases of inveterate ulcer which run on and on, and which are not amenable to ordinary medical treatment they certainly present a very favorable opportunity for the surgeon to do a great deal of good. I never happen to have had any cases myself which would consent to operation, but I have had some I thought needed it. There was done in the hospital two years ago, I think it was, for a case of hemorrhage which was persistent and which would not yield to treatment, an operation of resection by Dr. Elliot. I think that is one of the cases which is spoken of in Dr. Warren's table; it is the one perhaps that lived the longest. I was under the impression he lived as long as ten days. I had a case within a day or two where the symptom was hemorrhage and the man had so little to say about his previous condition, one of indigestion and disability from gastric troubles, that we hesitated as to an operation and finally, when it was thought it might be advisable, he was so far gone that operation was not to be thought of. A single case, I think I had, which was operated on by Dr. Maurice Richardson for dilatation following cicatricial contraction a number of years ago, I do not see included in that list. It may be the first one who died fifteen days after the operation from pneumonia. Another thing which occurs to me is the treatment by diet after operation, which should resemble the treatment of the original ulcer; instead of seeing how soon the patient can take house-diet he ought to be put on a restricted diet just as if he were originally coming under the treatment for gastric ulcer.

I have had one case of perigastritis operated on at the Massachusetts General Hospital. I don't see it spoken of in the table. The man is still living or was a little while ago, and his symptoms were quite like what Dr. Warren has mentioned. The diagnosis made by me was adhesions which were due to another cause and not from gastric ulcer. The cause of the trouble was not diagnosticated but operation gave relief.

The difficulty of making a diagnosis of existent ulcer sometimes is considerable. Last September a person came into the hospital with the diagnosis made by a gentleman outside of gastric ulcer and entered the hospital in my service. I agreed to the diagnosis. She was seen by several others and shown at two or three clinics, and everybody accepted the diagnosis of gastric ulcer. The history was complete. The woman was uneducated and gave a history, not one which she was led into apparently by leading questions, of gastric ulcer, and her friends confirmed it. We thought the diagnosis was clear. The post-mortem I think was made in Dr. Wright's absence. It was clear she did not have anything the matter with the stomach or duodenum. The record says here: "We got ready to perform the operation on her of laparotomy for the excision of a possible gastric ulcer." But it says in the autopsy record: "In the mucous membrane along the lesser curvature were several small areas of ecchymoses. The organ was otherwise not remarkable." I suppose those were the little so called gastric erosions which sometimes give rise to a certain amount of bleeding, but nothing compared to what this woman was said to have vomited. I never saw any vomiting of blood in this case. This was the history given by the attending physicians and by the sister of the patient: "Three days before she entered the hospital while unwell she reached up to fix a curtain and had pain in the stomach and lay down. After a while she got up and while at the table became nauseated and

obliged to leave the table. She vomited a dark brown fluid like coffee-grounds and after that became very pale and very weak, and then two days afterwards she had another spell of vomiting which was said to be as much as would fill a chamber-pot and was dark brown and contained blood, the doctor said." The stools since she entered the hospital were dark brown and tarry. She had no further hemorrhage while she was here, but continued to get more anemic and an examination of blood showed, as we thought, she was losing every day, so that we concluded we would get ready for an operation, but the patient died and at the post-mortem examination there was nothing found except these numbers of erosions in the stomach. There was nothing in the intestines except a very few small areas of ecchymoses in the mucosa of the duodenum.

I had a case a few days ago where the woman came in with the history of having had for a number of months a good deal of disturbance in her digestion. She said she had always had trouble with the stomach from her childhood. Since she came to Boston two and a half years ago she had had relatively little until about eight months ago when she began to have burning pain, sour eructations and vomiting after eating. A month ago she vomited a pint of bright red blood, says she has vomited some blood about every day since then, sometimes a teaspoonful, sometimes a glassful, yesterday about two teaspoonfuls of blood. The pain, sour eructations and distress have continued and come immediately after eating. The pain radiates from the right shoulder and there is tenderness in the epigastrium not localized over a small area and rather more to the right than in the median line. We also found some tender places behind, I think in the region of the ninth vertebra. She kept losing blood in this way every little while and it seemed as if the diagnosis was clear. I wanted to have her operated on, but she did not want to have the operation performed, and a few days afterwards the patient died and we found there was no ulcer at all. There was, however, a gastro-enteritis and there were a few superficial erosions such as were seen in the other case. Where the large amount of blood came from I am unable to say. Those are the two cases in which there was nothing more than an erosion.

Here is a case which came in a few days ago, a man saying that he had the following history: Five weeks ago for the first time he began to have pain low down below the umbilicus and in front of the abdomen. The pain was steady day and night and it was so severe at times as to lay him up. This gradually grew more severe until two or three days ago. About three weeks ago he began to vomit within five to ten minutes after meals on the average twice a day, usually a small amount, about two or three mouthfuls, and not very sour. The better part of three days he has been constipated. He was found by the police unconscious, in a fainting spell, about noon the day he was brought to the hospital. Soon after he arrived at the hospital he vomited about a coffee-cupful of bright red blood slightly clotted without admixture of food. That was all the history we got. I examined him with great care. He looked anemic and he was not tender at all either in front or back. He was given an enema to wash out his intestine and we found a considerable amount of blood there, and the diagnosis was thought to be likely of an ulcer low down in the stomach or in the upper part of the duodenum. He was to have been seen by the surgeon, but somehow or other he was not, and twenty-four or thirty-six hours afterwards, when he was seen, he was moribund, so that no operation was done. After the death of the individual we found out from his sister a thing we had not been able to find out before, that he had had symptoms which were suggestive of duodenal ulcer. He had a great deal of gastric trouble ever since last summer. Often at that time he had severe pain which would double him up and give rise to attacks of vomiting. He could not seem to keep anything down, even tea. The vomiting occurred very soon after taking food or drink, but she insisted that he never vomited anything like blood.

I have here the stomach which was removed to-day by post-mortem examination. It shows very well the ulcer of the duodenum.

It is a very difficult thing in some cases, at least in my experience, to make a decision as to when it is desirable to operate on a case, and it is very easy to throw a man off his balance. In the few cases that have been operated on for me the diagnosis was pretty nearly correct except one. I saw one case at the City Hospital which Dr. Folsom also saw, where he, I believe with others, thought it was a case of gastric ulcer; an operation was done and nothing of the sort found. The woman had been hysterical and had read up the history of gastric ulcer, and knew it quite as well as any of us, and she gave a history of profuse vomiting containing blood and vomiting immediately after meals and pains and distress, — all the symptoms of gastric ulcer. The house-officers even had seen a considerable amount of blood, and acting on that an operation was performed and no gastric ulcer found. The symptoms, however, were relieved by the operation. Her dyspepsia was entirely cured and so was her vomiting. She went out quite happy.

DR. F. COBB: In connection with a study of general peritonitis I collected 44 cases of perforation of gastric ulcer operated upon up to 1895 with 10 recoveries; since 1895 I have collected 99 cases with 50 recoveries. Of the total number of cases operated on for gastric perforation, 78 per cent. of those operated on within twelve hours recovered.

With regard to the cases Dr. Cutler speaks of where profuse hemorrhage occurred and no perforation was found, Dr. Weir, of New York, and Dr. Abbe have operated and found the condition Dr. Cutler described, minute erosions and ecchymoses.

DR. FITZ: There is one point I should like to speak of, but not with reference to urging or opposing operation in cases of gastric ulcer when the indications for the former are satisfactory; we must not be too hopeful as to the results. Undoubtedly the operation is generally successful, as is indicated in the statistics, but we are equally, if not more concerned, with the case afterwards. The best statistics show about 72 per cent. of recoveries, and yet, under medical treatment, as we learn from Dr. Warren's evidence, a large percentage of the recovered cases soon die leaving only 48 per cent. of cures. Of what happens to the cases of recovery after surgical treatment we are ignorant. I have in mind also a case which illustrates some of the points with reference to what Dr. Warren has brought out concerning the relation of gastric adhesions to ulcer of the stomach. Within the past year Dr. M. H. Richardson and I saw a patient who complained of pains in the region of the gall-bladder. An explora-

tory operation was advised with reference to the possibility of adhesions. Dr. Richardson found adhesions between the transverse colon and the gall-bladder, but there was also a button-like mass of fibrous tissue projecting from the posterior wall of the stomach near the pylorus, which was regarded as the scar of a chronic ulcer. It appeared that twenty-five years previously the patient, a naval officer, while in China, suffered during a period of several months from gastralgia and vomiting which were attributable probably to an ulcer from which he subsequently had no disturbance until the adhesions became painful a short time ago.

The advantages of laparotomy for perforation were forcibly presented to me several years ago. A patient was brought to the hospital after having developed suddenly symptoms which suggested perforation of the stomach, and this diagnosis was made. She lived for eight days or more after these symptoms arose, and although an exploratory operation was urged she refused. At the post-mortem examination a large subphrenic abscess was found communicating with the stomach by an ulcerated opening through the anterior wall; the abscess was wholly circumscribed. No more favorable case for a successful operation could have been anticipated.

Dr. E. P. Joslin: I should like to explain that one case of cancer in the ulcer list. It is perhaps the most interesting case of ulcer in the hospital for ten years. The patient entered on the medical side with the diagnosis of ulcer. After two years he returned with the diagnosis of ulcer. Six months later he returned and died and it was found that cancer had developed on the ulcer.

Dr. Warren: In regard to the cases of erosions Dr. Cutler reported I have noticed quite a number of cases in literature in which severe and fatal hemorrhages have occurred and nothing found but minute erosions. It seems difficult to meet such a condition. If the erosions are in the pyloric portion of the stomach we might give rest to that part of the stomach by gastro-enterostomy. That is the operation I should perform I think if I found dilated stomach with undoubted hemorrhage. I should endeavor to give rest to the stomach and enable the bleeding points to heal.

Dr. Fitz: I think it would be a doubtful if not dangerous procedure to open the stomach for hemorrhage suspected to be due to erosions. It is very common to find the latter at post-mortem examinations without any evidence of hemorrhage during life. The cause of the fatal hemorrhage in the absence of ulcer may be varicose veins in the esophagus and the erosions, if found, may have no etiological significance.

Dr. J. H. Wright presented a report of a

CASE OF MYCETOMA (MADURA FOOT), WITH LANTERN SLIDES.

Dr. Beach: The surgical side of the very interesting case described by Dr. Wright becomes simple after his lucid description of the disease affecting the foot. An amputation was necessary far enough from the diseased area to secure the remaining stump from reinfection. In this instance the section was made through the metatarsus, saving the great toe. The patient now walks comfortably with the stump. The importance of early diagnosis is evident in view of the fatality of the disease by slow extension and exhaustion, and of the certainty of its eradication by surgery. Its rarity and similarity to more common affections as shown by the water-color exhibited by Dr. Wright, may easily lead to a deception of the observer in the absence of the crucial test of microscopical examination of sections and cultivation of the minute black particles described by the reader. It is the first case that ever entered the Massachusetts General Hospital to my knowledge and its appearance suggested an infiltration by tubercle actino-mycosis or some variety of sarcoma that had begun to break down. An examination by the probe of the fistulous openings failed to reach bone or the interior of the metacarpo-phalangeal joints which were included in the swelling. The examination of section for evidence of tubercle or sarcoma gave a negative result. Each time that any discharge was forced from the opening, it was observed that minute black granules like disintegrating blood-clot floated on the surface. Dr. Wright examined these particles, cultured them and made the diagnosis of "madura foot." Its early recognition has saved the greater part of the foot in good condition for use.

TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Held in Princeton, N. J., May 31 and June 1, and in New York City, June 2, 1898.

(Continued from No. 12, p. 298.)

THE SO-CALLED PREMYCOSIS STAGE OF MYCOSIS FUNGOIDES — A CONTRIBUTION TO OUR PRESENT UNDERSTANDING OF THIS DISEASE.

Drs. J. N. Hyde and F. H. Montgomery, of Chicago, presented a contribution with this title. They stated that out of 44 cases, 21 males and 11 females, the duration varied from a few months to twenty years, and the average age was forty-five years. The symptoms were quite diverse, but in 32 there was intense itching; in 28 there was erythematous redness occurring in patches, more or less defined; in six there was serous effusion; in five there was crusting. The patches were of various shades of red. The authors said that there seems to be a reasonable probability that the patient will usually be a male of forty-five or upward, that he will suffer from intense pruritus for a period of a number of years, and that he will be a large, stout person. While no positive statements seemed to be warranted, there was good reason for believing that the phenomena of the early stage represent a definite fungoid process, which should not be confounded with eczema, and that it is highly probable that histological examination of the lesions will go far towards establishing the diagnosis.

Dr. Fordyce inclined to the view that the disease was some form of granuloma, possibly complicated by infection with some micro-organism. He would hardly feel like making the diagnosis from the microscopic findings alone.

Dr. Duhring said that he had been surprised at the number of observers who spoke of a similarity of the early appearances to those of eczema, for in his own experience it had been very rare indeed for the diagnosis of eczema to even occur to him. In the cases in which he had studied the histology, he had been struck with the regularity of the cells, and the almost total absence of involvement of the epidermis. In several of the cases the mucous membrane had been undoubtedly affected. About twenty years ago he had

exhibited to the Association a case in which the mouth, bladder and vagina were involved. At the autopsy, a large flat tumor, or infiltration, of the bladder was found.

DR. WHITE said that in a comparatively short time he had seen three cases in which the eczematous appearance was evident. In one of the cases there was a vitiliginous condition of the skin. The similarity of the earlier cutaneous manifestations to those of leprosy would seem to indicate that the two affections are allied. In none of these cases had the pruritus been very troublesome.

DR. GILCHRIST referred to a case of mycosis fungoides seen at the Johns Hopkins Hospital in which the injection of Coley's fluid had caused dangerous reaction, but no favorable result. He thought these nodules could hardly be looked upon as sarcomata; they were more probably infected granulomata.

DR. VAN HARLINGEN said that the early appearance was only eczemiform to the superficial observer; the appearance was rather like that seen in the early stage of Paget's disease of the nipple.

DR. G. H. FOX said that in the majority of the eight or ten cases that he had observed there had been an appearance that might readily be mistaken for eczema, and he knew of no other cutaneous disease in which the itching is so agonizing. He had seen the vitiliginous appearance, but not in the early stage.

DR. SHERWELL said that in his experience there had been, in the later stages, an erythema followed by an eczema, associated with intense pruritus. He had very frequently seen the administration of arsenic followed by the disappearance of sarcomatous tumors.

DRS. STELWAGON and POLITZER also spoke of the frequency of eczematous manifestations in mycosis fungoides.

DR. P. A. MORROW referred to a case which had presented all the characteristics of a frank eczema, and had been treated for that condition for a year and a half before anything had developed to suggest the diagnosis of mycosis fungoides. He had used injections of Coley's fluid in one or two cases, and had also given the arsenical treatment a fair trial, but with no permanently beneficial results.

DR. HYDE, in closing, adverted to the fact that in the cases summarized in the paper, the patients were robust and fleshy, and that this had been noticed by other observers.

DR. MONTGOMERY, in closing the discussion, said that he thought evidence was fast accumulating in support of the statement that the character of the infiltration in the early stage of mycosis fungoides presented microscopical characteristics quite apart from those of any other erythema or cutaneous disorder likely to be confounded with it. As the infiltration becomes thicker, the epithelium becomes thinner, and even before the tumor stage has been reached, the rete will be decidedly thinner than usual.

A STRANGE CASE OF GRANULOMA OF FACE AND EXTREMITIES.

DR. F. J. SHEPHERD presented a brief clinical report with this title. The lesions described by him resembled those seen in rare instances after the administration of the iodides or bromides, but this patient had received no medication whatever. A careful physical examination of the lungs proved negative, as did also the examination for tubercle bacilli, and the inoculation of a guinea-pig. Moreover, the histological features were not those of tuberculosis. Dr. Shepherd said that in spite of these facts, the patient reacted to tuberculin, and in this test he had great faith, as it had rendered him good service in several obscure cases. He was inclined now to look upon the case as tuberculous.

DR. ROBINSON said that too much weight should not be given to the reaction produced by tuberculin, for, he believed that it was possible in many cases of infected adenomata to obtain this reaction.

DR. GILCHRIST said that before excluding tuberculosis in such cases a portion of tissue should be removed by the curette, macerated thoroughly and forcibly, and then stained in the usual way.

DR. WHITE remarked that, in his experience, tuberculous lesions of the skin of any size do not so rapidly and spontaneously disappear.

LYMPHANGIOMA CIRCUMSCRIPTUM.

DR. W. T. CORLETT reported two cases under this heading, in which there was a wart-like eruption on the calf of the leg.

DRS. G. T. ELLIOTT and J. T. BOWEN stated that the description given in the paper, and particularly that dealing with the histological appearances, did not seem to correspond with what had been previously observed in typical cases of lymphangioma circumscriptum. Dr. Bowen thought the second case reported was much more like a linear nævus.

SECOND DAY.

GENERAL DISCUSSION ON LUPUS ERYTHEMATOSUS.

Etiology and Pathology.

DR. A. R. ROBINSON took up this part of the subject. He said that it was generally agreed that a lowered condition of nutrition exists. The disease is more frequent in the country than in cities, and more frequent in cold climates. Any interference in the circulation of a part may act as a predisposing cause. The continuous existence of the lesions for many years, and the manner of their extension are inconsistent with the view that they arise from toxins formed in the digestive tract. In a number of reported cases a decided reaction with tuberculin had been observed, more marked even than in lupus vulgaris. Our present knowledge is opposed to the belief that lupus erythematosus is a local disease which may be produced by a number of agents; it is more probably a chronic infective process, with organisms at the seat of the lesion. Many authorities believe that the process begins in the blood-vessels. That the disease is connected with the sebaceous or sweat glands is not borne out by observation. Leloir states that the epidermis is only secondarily affected. Dr. Robinson said that his own observations confirm Leloir's statement that there is an infiltration of embryonic cells along the blood-vessels, and diffusely through the upper third of the derma. At first, there is no hypertrophy of the epidermis, and atrophy does not occur until later. The rete shows some vesicular degeneration in the lower row. This infiltration is not found in the papillary layer, or around the hair follicles or sebaceous glands, and there is no evidence of thrombosis. In place of the normal tissue of the part there is a well-formed reticulum. The absence

of polynuclear and giant cells, and the presence of this reticulum, together with the marked staining of the cells throughout, he said, could only be the result of a local infective process. There was nothing in it resembling tuberculosis. He would, therefore, regard lupus erythematosus as a local infective granuloma, and not a local tuberculosis.

Amenability to Treatment.

Dr. J. C. White discussed this phase of the subject. He said that after forty years' experience he still held a well-nigh hopeless opinion regarding the curability of this disease. He did not believe it could be positively predicted that under the influence of any known drug a cure could be effected. If the case presents an inflammatory type, the most soothing applications should alone be used at first, and they are appropriate from time to time in any case to meet conditions of hyperemia. He derived far more benefit in the long run from such soothing applications as black wash, calomel washes, zinc oxide and zinc paste than from the stronger remedies. Where more stimulation was required, sulphur ointment, or zinc oxide and sulphur wash may be employed, or white precipitate ointment or lactic acid may be selected. Later on, iodo-glycerine and mercurials may prove beneficial. Creosote, carbolic acid, pyrogallic acid and chrysarobin are the severest remedies he used. He had seldom resorted to the use of the cautery, or of the curette. He had attempted to annihilate certain areas on the trunk by the use of fuming nitric acid, but had seen the disease recur beyond these areas.

(To be continued.)

Recent Literature.

Outlines of Practical Hygiene. By C. Gilman Currier, M.D. Third edition, revised and enlarged. New York: E. B. Treat & Co. 1898.

This volume contains all that is essential for the teaching of hygiene in the higher schools of learning; the subject-matter is well and conveniently arranged, and care has been taken to incorporate in this edition sufficient references to all modern discoveries and improvements in the progressive department of medical science of which it treats. The principal topics are the following: Soil and climate, clothing, personal hygiene, exercise, school hygiene, occupation, heating, lighting and ventilation, food and diet, water-supplies, sewerage, plumbing, garbage disposal, disposal of the dead, bacteriology, infectious diseases, disinfection.

The book may safely be used in high schools and universities as an excellent text-book.

The Street-Sweepings of Cities. — The Department of Agriculture estimates the annual loss in 354 cities from the waste of sweepings in street-cleaning at $3,000,000.

Cholera in Madras. — Cholera is reported epidemic in Madras and is steadily increasing in its prevalence. During the week ending August 19th, ninety-one deaths and about two hundred cases are reported.

THE BOSTON

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ABUSES OF THE PENSION SYSTEM.

According to the last annual report of Hon. H. Clay Evans, the amount paid out under the general pension laws is $75,275,583. This enormous sum, sufficient to maintain a large standing army, represents disabilities said to have been incurred in what we used to call "the late war," but which we must now call the Civil War. Seventeen years ago it was stated by President Garfield that the maximum of yearly pension payments had probably been attained but the number of claimants has increased rather than diminished under the stimulus of professional solicitors, lawyers and expert claim agents, and the Pension Bureau at Washington is still loaded down with claims amounting to hundreds of thousands awaiting adjudication.

Many a returned soldier who was once thought to have escaped unscathed has found after thirty or more years that the cough from which he complains originated in bronchial troubles developed in the march through the Wilderness.

Physicians in good standing are asked to make affidavit that the sickness of John Jones, suffering from cirrhosis of the liver consequent on Jones's alcoholic habits, is due to exposure to damp and cold, while camping before Vicksburg in Grant's campaign. William D—— fell a victim many years after the war to delirium tremens, but a pension is sought for his widow on the ground of "brain disease contracted from *coup de soleil* before Chattanooga in 1863." Ophthalmia, deafness, hemorrhoids, etc., are referred back to camp life as their primal cause, and where medical testimony to prove this cannot be had, the memories of comrades are tortured to supply the missing evidence. Untold frauds have been perpetrated, but the masses of the people are not yet in the mood to unearth them and bring them to light. It is still the policy of politicians to deal very generously with the soldiers, and to act out the principle that it is better that ten dishonest

claims should be allowed, than that one worthy applicant should be rejected. Retrenchment is not popular with the people or with politicans, and the Grand Army of the Republic has recently denounced Hon. H. Clay Evans, the pension commissioner, who has found that there are a very large number of pensions now improperly paid, and that the frauds perpetrated upon the government extract from the treasury every year many millions of dollars. The pension commissioner is endeavoring to put a check on these abuses, but instead of receiving encouragement from the Grand Army for thus acting, his proceedings are made the subject of loud denunciation.

It has really been made comparatively easy for any who enlisted in the War of the Rebellion, whether they did any service or were mere shirks and poltroons, to obtain a pension, for the act of June 27, 1890, called the Dependent Pension Act, will admit almost any one upon the pension list, provided he has plenty of "cheek," perseverance, and a faithful lawyer, if not a Congressman, to help him. The amount paid out last year under this act was $66,255,070, and is likely for years to come to be a steadily increasing sum.

The primary intent of the Dependent Pension Act was to confer aid on indigent soldiers, who without having incurred any real disability in the army might with the advance of years become by any pathological cause, surgical or medical, so infirm as to be unable either wholly or in part to earn their support. The country would guarantee generously to provide a moderate stipend for such soldiers rather than that they should be obliged to solicit charity either from relatives, friends, or the general public. It was understood that under this law pensions were to be bestowed only on proof of disability which could be rated with some approximate accuracy. Medical boards must not only make a diagnosis, but a complete and accurate pen-picture of the disability of the claimant. But doubts have arisen as to these reports, and, according to the published statement of the commissioner, to test the value of these reports the singular device was resorted to in one case of sending the claimant before four boards successively. Each board found unanimously; there was no minority report. One found no ratable disability, one found $8 per month, one $17 worth, and the fourth $24 worth. Medical inquiries by government boards into ratable disabilities seem to have been of little protection to the government in many cases, but they are all we have. The only way, says the *Evening Post*, to root out the frauds in the pension business would be through publishing the lists and having a judicial revision of the findings in every case. But this would be a work of years, and already there is a mountain of claims to adjudicate.

It is important that the examining boards should do their work carefully and impartially. There should be no rating where no real disability exists. A man who can work hard all day from 6 A. M. till 7 P. M. should be ashamed to ask for a pension, even though he may suffer somewhat from muscular pains supposed to be "rheumatism," or may have some inconvenience from hemorrhoids. A large part of the claims now pending under the law of 1890 are for disability occasioned by rheumatism, and these cases give the examiner more trouble than any others, especially as the subjects often seem robust, and the morbid manifestations are purely subjective. If he marks "no rating," the claimant none the less perseveres, and eventually obtains what he asks from some other board.

Persons come before the boards asking to be rated for "rupture" when the hernia is easily retained by a truss, or for "varicose veins" when an elastic stocking would remedy any inconvenience thereby caused. Others ask a pension for hardness of hearing which does not interfere with their work; for imperfect eyesight when glasses remedy the infirmity; for dyspeptic troubles brought on by faulty dietetic habits which they might easily correct. It would be interesting to know how much the country is annually taxed for "hemorrhoids," for "chronic catarrh," for "headaches," for "lumbago," for "sciatica," for "chills and fever," for "diarrhea," etc., which have not disabled to any appreciable extent, or deprived of the means of earning a comfortable living those pensioned for these alleged complaints.

With those who are seriously, perhaps totally, disabled by paralysis, by consumption, by blindness, by visceral disease, by severe surgical injuries, the case is altogether different, and as long as the present pension laws exist, such persons will be the proper recipients of the bounty of the government. And as all the veteran soldiers are growing old, and are suffering to a greater or less extent from the infirmities of age, it will not be long before examining boards will be justified in rating as pensionable almost every applicant who presents himself before them. But before this, a service pension act will undoubtedly be passed and medical examining boards will no longer be needed.

We do not stop to speculate on the good times coming when not merely all the surviving soldiers of the War of the Rebellion (all who will accept the bounty) will be fed out of the public treasury, but there will be a great many soldiers of this summer's war to add to the list of the pensioned — unfortunately not so many who incurred wounds as disease in the campaign — and the raid on the country's exchequer will only be limited by the government's ability to satisfy all demands.

FLIES AS CARRIERS OF TYPHOID FEVER.

A COMMISSION, consisting of Drs. Lee, Vaughan and Shakspeare, was lately appointed to visit our military camps and inquire into the cause of the epidemics of typhoid fever in those camps. This commission inspected the camps at Chickamauga, Huntsville, Fernandina and Jacksonville, and as a result of their investigation, reported that in their opinion the common house-flies, *musca domestica*, which swarmed in all the camps and had unimpeded access to the excreta and

ingesta of the soldiers, were the active and immediate agents for the spread of this disease among the troops, the disease having been originally brought to the camps by the volunteers from their homes. The commission give in their report certain reasons for entertaining this opinion. The opinion at present has merely the weight of a plausible theory. No positive proof is adduced, and no control experiments have been made to support the theory. The reasons given for entertaining the theory are sufficient, and the theory in itself is sufficiently plausible to make such experiments, which should not be difficult, desirable.

The same theory was adduced to account for the scattered cases of cholera which occurred in the city of New York, in September of 1892, when that city was quarantined against the epidemic of cholera then prevailing in Europe. But this theory in regard to cholera was based upon the positive results of careful laboratory experiments made in Europe by Simmonds and Sawtschenko, experiments which showed, not only that the house-fly might be a carrier and disseminator of the cholera bacillus, but also that those bacilli are taken into the body of the fly, pass through it without loss of their active properties and, moreover, in all probability, actually multiply during their sojourn there.[1]

As above said, it would be quite worth while for some of our bacteriologists to apply such experiments and seek for such proof in regard to flies as carriers of typhoid fever.

This proposition as to the spread of typhoid among the volunteers by means of flies, it should be remembered, has no real bearing upon the question of fixing the responsibility for the high percentage of sickness among the volunteers and the neglect of camp hygiene. It does emphasize the fact that there was an astonishing neglect of camp hygiene in many instances. The measure of responsibility for the results — as between Congress, the War Department (which includes the Secretary of War, the Quartermaster's Department, the Medical Department, etc.), and the soldiers themselves — this still remains undetermined and unaffected by the presence and activity of the domestic fly. Of course, in so far as this responsibility is fixed upon Congress the "intelligent voter" himself must assume it.

We are not the first to recall, in this connection, the entomological verse:

> "Great fleas have little fleas upon their backs to bite 'em,
> And little fleas have lesser fleas, and so *ad infinitum*.
> And the great fleas themselves, in turn, have greater fleas to go on;
> While these again have greater still, and greater still, and so on."

MEDICAL NOTES.

TYPHOID FEVER NOT MALARIA. — There seems to be good reason to believe that much and perhaps most of the so-called malaria which afflicts our troops in camp in Florida and in Puerto Rico as well, is really not malaria at all, but is typhoid fever.

DR. JOHN B. ROBERTS has resigned the presidency of the Board of Trustees of the Philadelphia Polyclinic and College for Graduates in Medicine. Mr. William E. Donovan, who has been a corporator of the institution since 1889, and a trustee for several years, was elected to succeed Dr. Roberts.

BOSTON AND NEW ENGLAND.

RETURN OF THE "BAY STATE." — The hospital ship *Bay State* arrived at Boston again on September 27th, from Arecibo, Porto Rico, after a remarkably quick and successful return voyage. She brought 100 men, nearly all of whom were members of the 6th Massachusetts. There were no deaths on the voyage, and all the patients had shown marked improvement. Only five of the patients were unable to walk from the ship.

BEQUESTS TO HOSPITALS. — By the will of Miss Caroline T. Downs, of Canton, which was executed on February 8, 1893, and has just been admitted to probate, the Children's Hospital of the city of Boston is to receive $20,000; and the New England Hospital for Women and Children, $20,000. If there is a remainder of her estate after paying the above bequests it is to be divided *pro rata* among these and other charitable institutions and in proportion to the amount that each has received.

NEW YORK.

YELLOW FEVER AT SEGURANCA.—The transport *Seguranca*, on September 20th, arrived off Montauk Point from Santiago, and reported on board a case of yellow fever, the patient being a civilian, of Macon, Ga., who was attacked by the disease the third day out. The authorities at Montauk communicated the fact to the Health Officer of the Port and he at once requested that the vessel should be sent to New York harbor. She reached quarantine on the 22d, and the yellow fever patient and twenty soldiers were transferred to Swinburne Island, while the remaining passengers were taken to Hoffman Island for observation. Their clothing and baggage were disinfected, the ship was fumigated, and the crew were ordered to be kept on board for five days. On September 23d, the patient died, but no new cases developed. The sick soldiers were mostly convalescents from malarial fever.

SCHOOL FACILITIES TO BE INCREASED.—The Board of Education announces that it will shortly be able to overcome the congestion of the public schools with which it was confronted at the opening of the session. This is to be accomplished by hurrying up the new school buildings, by the employment of an extra force of workmen, by the placing of all children under six years of age in the kindergarten grade, and by providing temporary hired quarters for the latter class of pupils until the new school-houses are finished.

THE SMOKE NUISANCE TO BE STOPPED.—The Board of Health has commenced a vigorous crusade

[1] Journal, vol. cxxviii, p. 170.

against the smoke nuisance caused by the burning of soft coal, the use of which, unless proper provision is made for the prevention of smoke, is a violation of the sanitary code; and its inspectors have reported a large number of instances of such violation. A reasonable time is allowed to offenders to make the necessary changes after they are notified to cease using soft coal, and if the changes are not made within that time prosecution follows.

Correspondence.

[From our Special Correspondent.]

THE CONDITIONS AT CAMP WIKOFF.

CAMP WIKOFF, MONTAUK POINT, L. I., September 15, 1898.

MR. EDITOR: — For a temporary quarantine of a large number of soldiers — for which purpose Camp Wikoff was originally intended — there could be no better site than Montauk Point. It is a high rolling country, bare of everything except a stubbly grass, with little lily ponds between the hills and with the sea nearly surrounding it. The temperature is consequently even, and there is usually a cool breeze, and were the air a bit dryer, it would be a perfect place for fever patients. The natural drainage is excellent, the sandy sub-soil absorbing what sewage does not run off into the hollows and I doubt if there is any place on the Atlantic coast where an army could camp which has such advantages of isolation, climate, water-supply, and of a railroad terminus and harbor, and consequently of transportation facilities. It is only four hours by rail to New York and two hours by water to New London.

The general hospital is some two hundred feet above sea level, and from it one can see miles in every direction — the natural barrenness of the landscape being relieved by thousands of tents, reminding one of a great daisy field. To the eastward in the direction of the light-house are long black lines of picketed horses and other moving lines where some of the cavalry regiments are riding to water, and during daylight there are endless chains of four and six mule teams crawling along the downs distributing supplies to different parts of the camp. The whole scene is continuously shifting, for every day some new troop-ship arrives or some regiment is ordered away, and this entails a great deal of work and movement. Yet one would hardly think that there are between twenty-five and thirty thousand men in camp and many of them sick.

When I first came, a month ago, there were only half a dozen hospital wards erected; the soldiers were coming in by hundreds every day, many of them critically ill, and supplies of every sort insufficient. Not only were food and water scarce, but what there was of it could not be distributed because of the confusion. It was every man for himself. The sick suffered the worst; I was given a ward in the evening, and found that the patients had had nothing given them but whisky and quinine since the middle of the morning. The only medicines obtainable were quinine, camphor and opium and cathartic pills. A few of the men had cot beds, about half had mattresses, and all had blankets. Whether it was the result of military discipline or the hardship the men had suffered I do not know, but I have never seen such an uncomplaining set of patients. Any attention that was paid to them was regarded as a favor; neglect was never noticed.

Supplies of all sorts were pouring in however; affairs were straightening out under a good executive and in two weeks the conditions were very different. There are now in the general hospital alone forty wards, supplied with nearly all the necessities; roads have been made, a well dug and the water piped to different parts of the camp, and there are dispensaries, commissaries, electric lights, street sprinklers, telephone and telegraph lines, etc. As an indication of the amount of work done, the signal corps handled 1,800 telegrams in one of the first days. The condition has now changed from one of great want to that of comparative comfort. Everything would have been done by the government in time; the visit of Secretary Alger and later of McKinley resulted in the cutting of much red tape so that supplies, etc., were much more obtainable; but at first, had it not been for the Red Cross, the Massachusetts Volunteer Aid (under the very able management of Dr. Prescott) and the War Relief Association, the suffering would have been great. When the quartermaster and medical department could not furnish necessities, one of these organizations could. An impartial observer cannot praise their work too highly.

Besides the forty wards in the general hospital, there are two division field hospitals, a cavalry division hospital, a detention camp and a quarantine station. Patients are constantly being brought in in ambulances from the outlying regiments, or from the harbor where the men are being landed every day. The latter are first sent to the detention camp for five days to await the appearance of infectious disease and if none develops are sent to the general hospital, and from here are transported to New York.

Each ward consists of seven section tents placed end to end raised over a board floor, ninety-eight feet long and eighteen broad, there being fifty patients to the ward when crowded. We are promised a cutting down of twenty patients as soon as the pressure is relieved, for while at present there is no trouble on account of poor ventilation, there is barely room enough to walk between the beds. There are two and sometimes three wards in care of each doctor, and each ward is entitled to four nurses and two orderlies by day, and two nurses and two orderlies by night. This would be sufficient assistance, if it were not that there are only a few trained male nurses among them, the orderlies being for the most part hospital corps men, or volunteers or detailed men from the ranks. Many of these are nauseated by their unusual duties, and have to quit; many others get drunk, and still others shirk, so that a ward is seldom supplied by the same force twice. The nurses have to do all the work about the patients, such as giving typhoid baths and enemata, for it is only an occasional orderly who is fit for more than manual work. The most difficult part of the routine is the proper disinfection of the typhoid stools. The dejecta are emptied from the bed-pans, which are supposed to contain already chloride of lime or formalin, into tin buckets, and these are in turn emptied into the sinks or backhouses a hundred yards away, but it is as impossible to teach untrained men to take any precaution as it was to prevent their drinking contaminated water in the Southern camps, although they have repeatedly seen the results of this carelessness. All clothing of men arriving from Cuba and all bedding of the typhoids are burned, the rest being sterilized by steam, washed and returned.

The continuous shifting of the patients is a cause of annoyance to every one. As each transport arrives with sick men on board, a corresponding number has to be turned out of the hospital, and this means, not only a large amount of work, but a serious danger to the convalescents, who very likely are just beginning to pick up a little.

The soldiers, as a whole, are in two classes, — the one in the pink of condition; the other, the very sick. There is no intermediate class. As a rule, the regulars and the cavalry men are in the best shape, and the volunteers in the worst, for the latter had not learned how to economize rations or to look out for their own health while in the field. The serious condition of the sick men seems to be accounted for by the lack or irregularity of medical treatment. The cases are almost entirely medical, the only surgery being what would ordinarily crop out among a large number of individuals. There is a single tent devoted to surgical cases, under the direction of Senn, of Chicago.

Perhaps half the cases are malarial, indeed, it is the ex-

ception that a man has returned from Cuba unaffected by "the fever." Advanced malarial cachexia is the most striking feature of these cases, and combined with the browning of the tropical sun produces a horribly emaciated, cadaveric look, worse than that of long-standing malignant disease. Many of the so-called "pernicious" malarias (which means nothing more than neglected cases) end fatally from secondary anemia; coma is frequent, and these cases are apt to run continued remittent temperatures without responding to quinine. Such cases are, with difficulty, differentiated from typhoid without the help of a laboratory; there are no chills, and the fever does not respond to large doses of quinine by the mouth.

Hypodermics of the muriate of quinine, which is a combination of muriatic acid and urea to obtain solubility, is more efficient and not too irritating to the tissues. Warburg's tincture in two drachms to one-half an ounce doses is also good, when there is no tendency to diarrhea. In the ordinary intermittent fevers, cinchonism has to be obtained before the temperature drops. Besides the malarial infection, there are all sorts of complications, such as gastro-enteritis from quinine, exhaustion, starvation, dysentery, etc. Almost any nervous phenomena may accompany the later stages. I have had cases of what seemed to be cerebro-spinal meningitis, angina pectoris, chorea, paralysis of the lower extremities, musculo-spinal paralysis and trifacial neuralgia, respectively, until they cleared up under quinine. I also had a case that for three successive days relapsed into deep coma with Cheyne-Stokes respiration, the attacks coming every twenty-two hours, and lasting four or five hours. The coma would come on suddenly while the man was sitting up in bed smoking, and would disappear just as quickly. Quinine, thirty grains by the mouth and the same amount subcutaneously, prevented a recurrence on the fourth day.

Occasionally the chills are so violent that the men nearly shake themselves out of bed; and in these cases morphine at the beginning of the paroxysm is a valuable antispasmodic.

Just what the mortality from malaria is cannot be told of course, but it appears to be as large as that of typhoid. Many of these cases could probably have been saved if the treatment could have been begun in time.

The typhoids, as well as the malarias, run atypical courses, owing to complications, and the mortality is also unnecessarily high, though since we have been supplied with temperature charts and means of giving sponge baths, there is a great improvement. Whether or not typhoid is spreading has been much discussed. A chemical examination of the water is said to have shown freedom from contamination, but it is surface water and unpleasant to the taste.

A series of cases just in from the camp of the Second Infantry, close to the well, is suggestive of trouble. These men had, in the main, good food, and all drank the water, and after being in camp here between four and five weeks, some thirty of them were taken with what seemed at first to be ptomaine poisoning, but later showed unmistakable evidence of typhoid. Two of these have come to autopsy. There have been other sporadic cases, but the above is the only suggestion of an epidemic. If the water-supply is infected, the entire country may feel the effects, for every day regiments, convalescents and furloughed men are being sent away to all parts of the country, without, of course, any precautions.

There has been much discussion as to whether or not a true typho-malaria can exist, that is, an occurrence of malaria and typhoid in the same patient simultaneously. The history of the following case may throw some light on the question:

"The patient came in with the diagnosis of typhoid and with typical symptoms of rose-spots, low delirium, and brown, dry tongue, and while running a convalescence consistent with typhoid, he suddenly had a well-marked malarial paroxysm, which was repeated. There was no history of fever, until the present illness began, a week and a half before entrance, nor had there ever been a chill. Large numbers of the estivo-autumnal organisms were found in the blood" (examined by Dr. Ewing).

The cases of dysentery are the most pitiful, and are of great severity. The mortality appears to be about half that of the other two diseases. They are all amebic; the prostration is great, some of the cases having as high as thirty to forty small bloody movements a day. Opiates and astringents are valueless, though occasionally of benefit if preceded by a purge. Irrigation of the colon with quinine solution up to five per cent., or with silver nitrate up to two per cent., gives fair results.

The above three classes comprise, perhaps, ninety per cent. of the cases, the others being the usual run of pneumonias, bronchitis and the milder infectious diseases. There have been no authoritative cases of yellow fever, nor of the other rarer southern diseases, and there is a striking absence of appendicitis, no case with this diagnosis having been reported in the past month. There is also very little venereal disease.

The quality of the medical work done is not nearly so bad as would seem likely from the rapidity with which contract surgeons were necessarily hurried into service. The best known men here at present are Delafield, Nancrede, Senn and Sternberg. Dr. James Ewing, of New York, is making a special study of the blood in malaria, and his work has been of great value in obscure cases.

The work of the regular army is so arranged that the assistant surgeon has all the care of patients; as soon as he is promoted above that position, his work becomes entirely executive and clerical. Not only is there no inducement to do good scientific work, but the red tape that surrounds everything makes it impossible to do it. If, every night, a correct sick report is turned in, there is never a word said in criticism of diagnosis or treatment. The clerical work alone is important. It is this sort of thing that prevented some of the transports in Cuba from landing their medical chests, though men on shore were suffering for the want of them. The army surgeons are aware of this and ridicule the system, but can do nothing to remedy it.

Many of the soldiers who were in Cuba criticise severely the manner in which they were transported and fed, and many more would do so, but for fear of being quoted. During the first few weeks of the camp, it was not uncommon to hear patients say: "Why, doctor, there's nothing the matter with me but starvation." While this was not strictly true, the insufficient or improper food was responsible for much of the sickness. The haste in which this camp had to be equipped, and confusion of orders, caused undoubtedly some suffering even here. For instance, sick men began to arrive at Montauk Point on the same day with the signal-corps men, who were to stake out the camp. Then orders were received to prepare hospital quarters for 500 men, yet this is only the usual number of sick to be expected in an army corps as large as that which came here, under normal conditions of health. The result was that for a month, sick men have been lying out in tents with their regiments for lack of room in the hospital. It seems also hard to explain why vessel after vessel was unloaded here, with the accommodations already insufficient, when, with clean bills of health, they might have gone directly to different centres along the coast. I am sure that dozens of lives have been lost by moving sick men who were doing excellently as long as they were not disturbed.

In accordance with orders just received to prepare permanent quarters for five hundred patients, ten of the wards are being converted into wooden sheds, and within a few days all the men will be under warm cover, or else transferred to New York. The rush is about over, and the patients are now getting good care, and will continue to receive it, unless one of the gales prevalent here at this season blows down the tents before they can be changed over. Barring an outbreak of typhoid here, or of yellow fever on one of the transports now on the way north, the camp will doubtless be deserted by the middle of October.

Very truly yours,

SEABURY W. ALLEN, M.D.

METEOROLOGICAL RECORD

For the week ending September 17th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...11	30.22	60	70	50	59	46	N.W.	W.	7	10	C.	C.	
M...12	30.32	60	65	54	60	62	N.	S.	15	8	C.	C.	
T...13	30.39	58	67	49	71	70	N.W.	S.	4	9	C.	C.	
W...14	30.28	62	72	51	77	81	W.	S.	6	8	C.	C.	
T...15	30.15	69	75	56	97	89	E.	N.E.	5	6	G.	O.	
F...16	29.98	66	70	61	94	90	N.	S.E.	7	1	O.	F.	
S...17	29.99	74	84	65	87	77	W.	W.	9	8	C.	O.	
☞													

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 17, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1333	610	25.46	9.15	18.53	3.08	1.54
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,314,256	362	119	19.04	15.12	7.34	3.20	4.43
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	—	—	—	—	—	—	—
Boston	517,732	—	—	—	—	—	—	—
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	—	—	—	—	—	—	—
Washington	277,000	125	48	16.80	12.00	5.60	2.40	7.20
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	65	34	36.26	6.16	26.18	1.54	1.54
Nashville	87,754	30	7	10.00	6.66	10.00	—	—
Charleston	65,165	—	—	—	—	—	—	—
Worcester	105,050	31	18	12.92	9.69	12.92	—	—
Fall River	96,919	34	21	38.22	11.76	32.34	5.88	—
Lowell	87,193	42	28	19.04	2.38	16.66	—	—
Cambridge	96,812	—	—	—	—	—	—	—
Lynn	65,226	—	—	—	—	—	—	—
New Bedford	62,416	29	20	51.75	3.45	44.85	—	3.45
Somerville	57,977	19	5	21.04	15.78	15.78	—	—
Lawrence	55,510	22	14	12.45	8.30	8.30	4.15	—
Springfield	54,790	19	8	31.56	5.26	21.04	5.26	—
Holyoke	42,364	25	12	28.00	16.00	28.00	—	—
Salem	36,062	11	4	18.18	—	18.18	—	—
Brockton	35,353	—	—	—	—	—	—	—
Malden	32,891	8	1	12.50	25.00	—	—	—
Chelsea	32,716	21	11	14.28	4.76	—	—	—
Haverhill	31,406	7	2	28.46	14.28	—	14.28	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,960	6	3	—	—	—	—	—
Fitchburg	28,392	8	2	12.50	—	12.50	—	—
Taunton	27,812	11	0	27.27	—	18.18	9.09	—
Quincy	22,562	10	6	60.00	10.00	60.00	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	6	2	33.33	—	16.66	—	—
Everett	21,575	11	4	18.18	9.09	9.09	9.09	—
North Adams	19,125	6	5	66.66	—	66.66	—	—
Chicopee	17,368	9	4	11.11	—	11.11	—	—
Medford	15,832	5	2	—	—	—	—	—
Newburyport	14,794	9	4	55.55	—	44.44	—	—
Melrose	11,965	5	2	20.00	20.00	20.00	—	—

Deaths reported 2,543: under five years of age 1,032; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 636, consumption 258, acute lung diseases 166, diarrheal diseases 441, typhoid fever 76, diphtheria and croup 57, whooping-cough 34, cerebro-spinal meningitis 16, scarlet fever 7, erysipelas 3, measles 2.

From whooping-cough New York 15, Philadelphia 7, Providence and Baltimore 5 each, Washington, Lowell, Brockton, Haverhill and Newburyport 1 each. From cerebro-spinal meningitis New York 8, Chelsea 2, Philadelphia, Baltimore, Washington and Somerville 1 each. From scarlet fever New York 7. From measles New York 2.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending September 10th, the death-rate was 24.6. Deaths reported 5,287; acute diseases of the respiratory organs (London) 130, diarrhœa 1,318, whooping-cough 82, diphtheria 62, fever 48, measles 39, scarlet fever 29.

The death-rates ranged from 16.4 in Cardiff to 35.5 in Salford; Birmingham 23.1, Bradford 21.9, Derby 23.4, Gateshead 30.1, Hull 30.2, Leeds 23.5, Leicester 23.5, Liverpool 29.7, London 23.2, Manchester 30.3, Newcastle-on-Tyne 33.9, Nottingham 23.0, Sheffield 24.6.

RESIGNATION.

DR. J. L. HILDRETH has resigned as Dean of Tufts Medical School.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The next regular meeting will be held at the Medical Library, 19 Boylston Place, on Wednesday, October 5th, at 12 M.

The following papers will be read. Dr. Wyall Johnston: "Medico-Legal Value of the Glycogen Test."

Dr. Oliver H. Howe: "Two Cases of Sudden Death in Infants."

Dr. Garry de N. Hough: "A Case of Cephalic Tetanus."

Dr. J. G. Pinkham will report a case.

Members of the medical profession are cordially invited.

JULIAN A. MEAD, M.D., *Secretary*.

BOOKS AND PAMPHLETS RECEIVED.

Advances in the Domain of Preventive Medicine. By J. M. G. Carter, M.A., M.D., Sc.D., Ph.D., Waukegan, Ill.

Catalogue of the Law, Medical and Dental Departments of the National University, Washington, D. C., for 1898-99.

The Gospel According to Darwin. By Woods Hutchinson, A.M., M.D. Chicago: The Open Court Publishing Co.

Transactions of the American Surgical Association, Vol. XVI. Edited by De Forest Willard, A.M., M.D., Ph.D. 1898.

Twelfth Annual Announcement of the University of Oregon, Medical Department, Sessions of 1898-99, Portland, Ore.

Eleventh Annual Report of the Board of Health of the City of Newport, R. I., for the year 1897, with Mortuary Statistics.

A Contribution to the Study of the Symptoms of Chronic Urethritis. By Fred. C. Valentine, M.D., New York. Reprint. 1898.

Chicago Sanitary Flour for Certain Dyspeptics and Diabetics. Diabetic Gangrene. By N. S. Davis, Jr., A.M., M.D. Reprints. 1898.

Report of the Kensington Hospital for Women (Non-sectarian), Philadelphia, from October 12, 1896 to October 11, 1897. Incorporated June 11, 1887.

Seventeenth Annual Announcement of the New York Post-Graduate Medical School and Hospital, University of the State of New York, for 1898-99.

Symposium on the Patho'ogy of the Diseases of the Cardio-Vascular System. The Myocardium. By J. H. Musser, M.D., and J. D. Steele, M.D. Reprint.

Forty-third Annual Report upon the Births, Marriages and Deaths in the City of Providence for the year 1897. By Charles V. Chapin, M.D., City Registrar.

Cystic Degeneration of the Chorion Villi with Coincident Cystic Tumor of Both Ovaries. By Henry Kreutzmann, M.D., San Francisco, Cal. Reprint. 1898.

Tuberculosis and Its Treatment by the Later Methods; Subject Illustrated by Twelve Clinical Cases. By A. G. Deardoff, M.D., San Francisco, Cal. Reprint. 1898.

The Diagnostic Importance of Fever in Late Syphilis. Renal Calculus. The Essential of the Art of Medicine. By J. H. Musser, M.D., Philadelphia. Reprints. 1893-98.

Report of Surgical Operations in the Private Surgical Infirmary of Drs. C. S. and Samuel S. Briggs, during its Seventh Session, from September 10, 1897 to August 1, 1898. Reported by J. E. Bell, M.D., Nashville, Tenn. Reprint. 1898.

A Text-Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; Laureate of the Royal Academy of Medicine in Belgium; of the Medical Society of London, etc. Seventh edition. Philadelphia and New York: Lea Brothers & Co. 1898.

Original Articles.

CHOICE OF METHODS IN HYSTERECTOMY.

BY ERNEST W. CUSHING, M.D., BOSTON.

SIX years ago a memorable discussion on hysterectomy took place in this Society which led rapidly to a complete change in the customary methods of performing this operation, and was the starting-point of a great increase in the frequency with which it was employed. It has seemed to me that it will not be without interest now to discuss certain points of the technique of the operation, and to compare different methods, in order to discover in how far we agree in our procedures and to what extent a consensus of opinion has been established. I therefore venture some observations based on my own experience in the the hope of eliciting the opinions of the other Fellows of this Society.

For the removal of the uterus we have to consider the following methods, each of which is or may be preferable in certain cases, so that it is of interest and importance to examine the indications which would cause either one or the other to be chosen in a given case:

- I. Suprapubic amputation
  - Extraperitoneal.
  - Intraperitoneal
    - Cervix cauterized and drained.
    - Cervix closed without cautery.
- II. Total extirpation.
  - Abdominal
    - Vagina open (peritoneum open or closed).
    - Vagina closed, choice of catgut or silk.
    - Combined operation, by vaginal and abdominal incisions.
    - Methods of Doyen, Martin, Richelot.
  - Vaginal.
    - Clamps (morcellation).
    - Ligatures, abdomen drained or closed.

I. (*a*) The extraperitoneal treatment of the stump by pins and the serre-nœud or elastic constrictor has been, I presume, abandoned by all of us, except under exceptional circumstances. Nevertheless, it is well to remember that it remains a precious resource as an expedient of emergency when, by reason of shock or weakness from previous hemorrhage, it is advisable to terminate an operation immediately. In some cases also of Porro's operation where the great vessels of the pregnant uterus are a formidable factor, or where there has been a rupture of the uterus during labor, and an operation of emergency is performed, this method of treating the stump will always have certain advantages for those who are familiar with it. The rising generation, however, will have no opportunities of seeing this operation or becoming familiar with its niceties, so that practically it is to be classed with the abandoned methods.

I. (*b*) The method of treating the stump intraperitoneally by dilating and cauterizing the cervical canal and draining it with gauze, as first introduced by Eastman, and recommended by Chrobak in 1891, was used by me in 1892 in some twelve cases with the happiest results; but I have now abandoned it, and I think that it has been generally given up, because in cases where there is especial reason to fear infection from the cervical canal, it is better to remove the whole cervix.

Careful experiments have shown that the healthy cervical canal is not septic, and the preparation for hysterectomy now universally adopted includes thorough cleansing and disinfection of the whole uterine cavity, so that when the opening of the stump is closed by suture it is found safe and preferable not to cauterize it, and thereby a better union is obtained.

If, when the stump is divided, the incision is made quite conical by traction on the body of the uterus and an oblique incision, there is very little of the cervical mucous membrane left, and there is a flap of uterine tissue in front and behind. I pass a long curved probe through the canal from above downward, and let an assistant draw down through the canal a strip of iodoform gauze wet in sublimate solution; this wipes all mucus and secretion from the mucous membrane, including any secretion which may have descended from the uterus during the operation, and prevents any infection of the cervical stump from the vagina after the operation. Even this procedure is not necessary in most cases. Then I unite the flaps of the cervix with catgut in continuous suture above the mucous membrane of the canal, and, returning, unite the peritoneum over the uterine tissue.

This seems the proper place to consider the indications for removing the whole of the cervix, or for leaving some of it — a point on which there is still much difference of opinion. The burden of proof seems to be on those who advocate total extirpation, for it prolongs the operation from ten minutes to half an hour, while frequently there is some blood lost before the lateral and posterior vaginal arteries are controlled. It may be added that the field of operation is brought nearer the ureters, and accidents have happened from this reason. It would seem that the opening of the vagina would increase the chance of infection, in spite of the most careful disinfection before the operation, and often when the vagina is short and the abdominal walls are thick or rigid the difficulty of operation is perceptibly increased. It is claimed that the pelvic floor is injured and the support of the intestines is diminished if the cervix is removed; but of this I have had no proof in my own experience. It is not to be denied, on the other hand, that the cervix uteri is the seat of sexual sensation to a considerable degree, and in many women it probably has a part to fulfil in the sexual orgasm, so that it is desirable to leave it intact unless there are indications for its removal.

Nevertheless, whenever hysterectomy is performed for malignant disease of any part of the uterus, the extirpation should be total; when the cervix itself is diseased, so that it is enlarged, eroded, or secreting profusely an unhealthy mucus or pus, it is better to remove it; when the uterus is removed with the tubes for tubercular conditions, or for gonorrheal disease which manifestly involves the uterine mucous membrane, so that there is presumably an infectious condition of the secretions, it is better to perform total extirpation, especially as in these cases it is often essential to provide for drainage. The same necessity for drainage may be a reason for total hysterectomy in cases where subperitoneal growth of fibroids has lifted up the peritoneum and left large raw surfaces.

If it is decided to remove the whole of the cervix, instead of amputating it, the incision is carried down at each side, keeping close to the uterus and pinching the lateral cervical arteries until the vagina is opened; or with a knife a median posterior incision may be made, cutting against the cervix, until the vagina is opened; or the same end can be reached by passing

one blade of a pair of scissors into the cervix and cutting through it posteriorly until the posterior cul-de-sac is entered. I prefer the first method; but it is immaterial. When the whole cervix has thus been removed the operator has the choice of three methods: either (1) the vagina may be left wide open for drainage, or (2) the peritoneum may be closed and the vaginal raw surfaces may be left open, or (3) the vagina and peritoneum may be wholly closed.

Of these alternatives I would reject the second, which has only the advantage that it permits ligatures to come away in due time, after an annoying period of suppuration. It seems to me to be one of the transition stages in the development of the operation, and to be obsolete in the days of perfected technique. If the vagina is to remain open, then a stitch on each side (using catgut) will close the little lateral vessels, and may be so placed as to cover the stumps of the uterine arteries with peritoneum and to narrow somewhat, but not too much, the opening into the vagina. It is well to split the posterior wall of the vagina for half or three-quarters of an inch and whip it with catgut, so that the gauze which is left for drainage lies at the bottom of the pelvis and not at some distance above it, as is otherwise the case.

Nevertheless, in some cases where drainage is necessary, and they are less frequent now than they used to seem some years ago, I prefer to close the vaginal opening entirely, using the glass drainage-tube. This is only advisable, however, when the case is in a place where I can watch it afterward, and when I have a nurse who is thoroughly trained in the care of the glass tube.

In my opinion the method of election is that of closing the opening in the vagina with a continuous catgut suture, and afterward uniting the peritoneum with another continuous suture of catgut, so that there is an unbroken line of union from the free border of one broad ligament, across the pelvis, covering the stumps of the arteries and the line of union of the vagina, to the free border of the other broad ligament. When this is completed there is no raw surface whatever in the pelvic cavity; there is no need of drainage, and the convalescence is astonishingly smooth and painless. It makes it easier to unite the peritoneum smoothly, burying all raw surfaces, if, instead of applying mass ligatures, the broad ligaments are held by the fingers when severed, seizing and tying each artery as it is cut. Of course, if it is desired to show in how small a time the uterus can be removed the arteries will be at first secured with catch-forceps and only tied after the uterus has been removed. Sometimes the difficulties of the operation are such that this is the only practicable method; but I think that on the whole it is better to tie each artery when it is cut, for the time must be spent, in any case, before the abdomen can be closed, and there is no real advantage in removing the uterus in a given number of minutes if the whole duration of the operation is not thereby diminished. At any rate, when the vagina is cut open it should be sewed together at once, being held together meanwhile by double tenacula forceps, so that the chance of infection from this source is minimized.

It is indispensable that in the preliminary cleansing of the vagina and uterus all septic material shall have been removed or sterilized, but although this is easy to say it is not always accomplished satisfactorily. In foul or suppurating cases it is well, after curetting and washing out the uterus with sublimate solution, to pack the cavity with gauze, and even to sew up the cervix with a few stitches, so that afterward when the uterus is handled it shall not discharge an infectious secretion into the vagina. This can be done by an assistant, so that the operator may keep his hands clean.

This brings us to the consideration of the question whether it is not well to proceed, after cleansing the vagina and uterine cavity, to the separation of the vaginal tissues from the cervix and to the ligation of the uterine arteries from the vagina; in other words, to the method known as the combined operation. I do not know of any particular objection to this method if the operator has to clean out the vagina himself, or if he has an assistant who is competent to liberate the cervix and tie the arteries. The fact that it was formerly in rather extensive use, while the present methods were in evolution, and that it has been abandoned by all operators of the first rank, leads me to place this method among the transition stages in the development of hysterectomy. In cases of fibroids the finished surgeon will never have any difficulty in performing the whole operation from the abdomen. In the exceptional cases, where a huge fibroid polyp has been extruded, and the thick pedicle passes through the os uteri, it is better to tie and cut the pedicle and pack the uterine cavity with gauze, and sew up the os, and then proceed to the abdominal operation as usual.

In cases of pyosalpinx or other obscure conditions it is not well to complicate matters by performing an important part of hysterectomy from the vagina, when on opening the abdomen it may be found that the uterus with the appendages on one side may be saved, or that it may be unnecessary or inconvenient to remove the whole cervix.

In certain cases of cancer of the cervix, however, it may be a great advantage to remove all the tissue which is apparently diseased before opening the abdominal cavity, if it is thought preferable to finish the operation by celiotomy.

I should not have mentioned the combined method of operating as a method of election before this Society, since I do not think that it is practised by any one present, were it not that it has recently been recommended by a gentleman of great experience, and I have reason to think that it is still in use among general surgeons. To facilitate the liberation of the cervix, and to prevent hemorrhage, it has also been recommended to separate the vagina from the cervix by the thermo-cautery, thus taking it for granted that the vagina will not be united and that time will be given for the silk ligatures to come away after weeks of suppuration. Now, although this use of the thermo-cautery has been highly recommended in performing hysterectomy with the aid of clamps, precisely for the reason that it prevents the edges of the vaginal wound from uniting too early and so preventing the escape of the inevitable discharges, and also for the reason that it probably diminishes the chance of cancerous infection of the incised, or rather cauterized, vaginal wall, yet in the case of hysterectomy for fibroid I would emphasize the fact that we ought to finish the operation, whenever it is possible, so that the wound shall be united throughout, so that on the inside every raw surface shall be covered in by the peritoneum, and in the vagina there shall be a complete union without suppuration.

Although, if the peritoneum is closed, it may not be

any great disadvantage to any given patient to have the vaginal wound heal by granulation, yet in a hospital every occasion for the propagation of pathogenic germs should be avoided. I often have had seven or eight cases of hysterectomy in my sanitarium at once, and certainly if all the abdominal wounds were suppurating I should not only be ashamed, but should think it a dangerous place to perform abdominal operations. Now, what is the difference in principle whether the suppuration be in the abdominal wound or out of sight in the vagina? The air is fouled, the nurse's fingers are infected, there is every chance through bedpans, douche apparatus, etc., for the hospital to breed sepsis. There is even greater chance that the patient get a cystitis, or that she have chills and other serious symptoms from the damming up of the secretions by premature closure of the vaginal incision.

For these reasons and others which could readily be adduced, I maintain that the rule of all finished hysterectomy, either abdominal or vaginal, should be to close the wounds entirely, unless there is a positive indication for drainage or pressure packing.

It remains to consider the methods of Doyen and Martin, in which in the beginning of the operation the posterior vaginal fornix is opened from the abdominal side, the cervix seized and dragged upward; the broad ligaments are divided while compressed by the fingers of assistants, each artery as it is cut being seized with pressure forceps and tied afterward. Martin ties the broad ligament before opening the post-vaginal vault. Richelot's method is somewhat similar, except that he separates the bladder from the uterus first, and makes the incision between the bladder and the cervix, seizing the latter and drawing it up through the wound.

These methods in simple cases are rapid and showy, especially in the hands of their distinguished authors, who can make any method of operating seem easy and admirable. Nevertheless, I have no hesitation in classifying them as transition stages of the method of performing hysterectomy. They are all outgrowths of the combined operation, by which part of the operation was done through the vagina; in the case of the French operators by the introduction of clamps from below after the vagina was opened from above. They were evolved as a means of operating without the advantage of the Trendelenburg position, and for the convenience of an operator standing or sitting between the legs of the patient. The fact that such French surgeons as Segond and Jacobs, who have taken the pains to visit this country to study our methods, have renounced all other ways of performing hysterectomy and have adopted our procedures, is in itself an indication that we have nothing to gain by trying to copy a technique based on that of Doyen.

This brings us to the consideration of the relative advantages of abdominal and of vaginal hysterectomy, which was the principal object of the visit to this country of the distinguished gentlemen just named, and was also the motive of a visit which I made to France three years ago. I have given the subject much attention since that time, and from the results of my experience have arrived at pretty definite conclusions.

It is hardly necessary to point out that in a question of this kind the personal equation of the operator counts for a good deal. Some men have learned their art and achieved their distinction by operations in the vagina, while others are better trained in abdominal than in vaginal work. The training of the operator then, his possession of all the instruments necessary for the best work in vaginal hysterectomy, his surroundings, the length of his fingers, and even the rules of the hospital in which he operates may have an influence on the choice of the operation. It is not right, but nevertheless, it is a fact, that there are many hospitals in which the gynecologists are prohibited from performing operations by abdominal incision, where they may remove a fibroid by morcellation, or take out the uterus with the appendages by vaginal hysterectomy for salpingitis, but where they must transfer the case to the surgeons of the staff in case the abdominal wall is to be incised. Taking human nature as it is, we can readily foretell the resultant bias in favor of certain methods of operation. Contrary to the opinion generally held, it is, in my judgment, necessary to have a much greater dexterity, experience, and resource to perform vaginal hysterectomy in really the best manner in difficult cases than to operate by the abdominal incision. The burden of proof, therefore, is rather on those who recommend the substitution of the former for the latter in cases which are susceptible of operation by either method.

The advantages claimed for the vaginal method are: less danger of hernia, absence of cicatrix in abdominal wall, less time spent in operation and less shock. All of these advantages have become relatively far less by the improvements in the technique of the abdominal operation within the last few years; for hernia now is rare, the scar is reduced to a minimum, the difference in time is not sufficient to be usually of importance, and when abdominal hysterectomy is properly done without hemorrhage there is very little or no shock.

On the other hand, the abdominal operation has solid advantages which are founded on great principles of surgery and can never be shaken, for it gives greater certainty of diagnosis, greater facility in work by sight, the possibility of recognizing and overcoming unforeseen complications; greater security against wounding intestines and ureters, better control over hemorrhage.

There are certain special considerations which may further influence us in the choice of the method of removing the uterus, such as the age and physical condition of the patient, the amount of fat in the abdominal wall, the calibre of the vagina, the space between the pelvic bones, the preference of the patient, or even the possibility of obtaining consent to a necessary operation, which cannot be obtained if the abdominal wall must be incised. I need not repeat what I have said above concerning the objection as to the fouling the hospital by the vaginal method if clamps are used, nor refer to the pain and misery which the clamps produce. If these must be used there must be some reasons for the employment of a method which to-day seems crude and almost barbarous, whatever may have been its claims six or eight years ago, when abdominal hysterectomy was done by the extraperitoneal method.

The conditions, then, which would indicate the choice of the vaginal method with the use of clamps are, first, inflammatory conditions where the presence of pus in large amounts is certain, and the weakness of the patient is such that an abdominal operation would be probably fatal; in other words, where the operation is for the evacuation of pus in the pelvis,

the removal of the uterus being incidental, if found necessary; secondly, when the patient is old or weak, or the abdominal walls are very thick, while the vagina is capacious and the uterus freely movable, so that the vaginal operation promises such a saving of time that it seems preferable. Under favorable conditions it can be done in ten minutes or even in half that time, and in some cases this is of real importance; thirdly, in cases of cancer of the cervix when the conditions make it undesirable to close the opening in the floor of the pelvis, and the abdominal operation seems to give danger of sepsis.

Except under such rather exceptional circumstances, if vaginal hysterectomy is to have any standing in the present state of surgery, it must be as a very finished procedure of a very finished operator, and it must have a technique which will compare with the abdominal method.

While not attempting to enter into all the points of the requisite technique, I may say that the operation should comprehend the same improvements which have made the abdominal operation so perfect; that is, the vessels should be secured with catgut ligatures, the peritoneum should be accurately brought together, covering all raw surfaces, and the vaginal wound should be united, preferably with catgut, in such a manner as to bury the stumps of the broad ligaments, and to give a linear cicatrix, which may be expected to heal by first intention. While aware that it is possible to remove the uterus without using any ligatures and without cutting the uterine arteries, yet this does not appeal to me as a safe and surgical method, and if the appendages are to be removed also, the absence of ligatures becomes too risky to make it a practical procedure. Supposing, therefore, that the ligatures have been applied and the uterus removed, we should try to do what we would do in operating from above; that is, we unite the anterior and posterior peritoneal layers of the broad ligament on each side from the ovarian down to the uterine artery, with a continuous catgut suture. Then stitches can be passed through the vaginal walls and the peritoneum in such a way that both the peritoneal and the mucous surfaces are accurately united, while at the same time the raw surfaces at each side are included so that there will be no oozing. If drainage is thought to be desirable, a small roll of gauze may be left in the centre of the incision, instead of closing it completely; but although I always used to do this, I have now largely abandoned it in clean cases.

Performed in this way vaginal hysterectomy has a standing in favorable cases in comparison with the abdominal operation. But the admirable results obtained by the latter method leave little room for the former.

VACCINATION IN GERMANY. — We learn from the *Philadelphia Medical Journal*, that according to the latest official reports, the total number of cases of small-pox in Germany during 1896 was 92, of which 10 were fatal. The cases occurred along the Russian and Austrian frontiers. We commend this record to our American and English readers as an excellent commentary upon the wisdom of thorough compulsory vaccination, and as one in marked contrast to those presented by Austria and Italy, in which countries the vaccination-laws are much less rigidly enforced than in Germany. In Austria there were 2,663 cases, with 410 deaths; in Italy, 9,036 cases.

THE EDUCATIONAL TREATMENT OF NEURASTHENIA AND CERTAIN HYSTERICAL STATES.[1]

BY MORTON PRINCE, M.D., BOSTON.

IN recommending a treatment for neurasthenia and certain hysterical states, it must be understood that reference is made to the severer types of these neuroses only — to cases which have resisted all the ordinary methods and called for more extraordinary ones. Mild cases are usually amenable to simple procedures, like change of scene, cessation of wearing occupations and ordinary hygienic measures. As to the more obstinate cases, I think I am right in saying that we are still in need of a practical method of treatment which shall be applicable to the general run of cases. Neurasthenia differs from the organic diseases in that while on the one hand it is usually susceptible of cure, on the other it is not a self-limited disease, but may continue indefinitely, — growing, so to speak, on itself, and, like a snowball, taking upon itself bigger proportions from its surroundings.

A marked advance over all other methods was that originated by Dr. S. Weir Mitchell and bearing his name. It has unfortunately and mistakenly been called the Rest Cure. The logical basis of this method is, or perhaps was, the principle that faulty nutrition is the basis of neurasthenia, and that by curing faulty nutrition — making "fat and blood" — neurasthenic and hysteric symptoms disappeared. In the practical making of fat and blood, this primitive idea became associated with various other principles, inasmuch as the systematic procedure upon which successful treatment depends requires the combination of forced feeding, absolute rest, passive exercise and isolation. Rest and the other three agents are theoretically only devices to secure improvement in nutrition.

It should be noticed that by rest is meant absolute rest, so far as it is practically possible to make it. The patient is not allowed even to turn over in bed or feed herself. Passive exercise (massage and electricity) is only a device to prevent the deleterious effects in other ways, of rest, and to help the assimilation of food. Isolation is almost a *sine qua non* of the treatment; without it, the rest cure, although efficient in a certain proportion of cases, is still usually abortive in severe cases. This is a most significant fact. Now it is common knowledge that while the influence of isolation is complex, its chief mode of action is mental. This is so patent and so well recognized that I need not take the time to consider its mode of action in detail.

It is therefore apparent at once that along with the primitive idea of making fat and blood, another and essential factor has been introduced, namely, a mental one. And it must also be apparent to any one who is practically familiar with isolation in mental and nervous diseases, that the effect of mental influence can be enormously augmented or impaired according to the individuality and therapeutic attitude of the physician. As to the assumed pathological principle, — faulty nutrition, — I think there has been a growing conviction that this is not the real underlying principle of neurasthenia, and that the cures effected by the rest treatment are due to other influences, largely moral and educational, quite as much as, if not more than,

[1] Read before the Massachusetts Medical Society, June 8, 1898, and recommended for publication by the Society.

to the nutritive factor. I do not believe that the observations of the best and most experienced clinicians will support the view that neurasthenic symptoms are wholly dependent on, or caused by, inanition, whether of tissue or of blood. As to my own observations, I can say that in the early years of practice the scales occupied the more conspicuous place in the consulting-room. I accepted the inanition theory with unquestioning faith, and it was a disappointment to find that later experience failed to verify it, and that too frequently the relation between weight and neurasthenic symptoms was a very loose one. It frequently turned out to be the case that with gain of weight symptoms failed to disappear; and with equal frequency, perhaps, that with good nutrition marked neurasthenic symptoms were present. It became evident that some other principle was at work as a causative factor than that of insufficient nutrition.

I find this conclusion now amply verified by a review of my cases observed during the last fifteen years, and it seems to me also to have been recently verified by a very valuable study of "The Relation of Neurasthenic Conditions to the General Nutrition," by Dr. Robert T. Edes.[1] Dr. Edes, as a result of a systematic study of his cases, has arrived at what seems to me similar conclusions; that is to say, Dr. Edes concludes "that no plan of treatment which affords a prospect of anything like enduring success can afford to leave . . . wholly out of sight" the improvement of the nutrition. "So far as body-weight, which, of course, depends upon the harmonious work of more than one function, is concerned, by far the greater number of my cases seem to fully confirm the popular view. In the great majority a steady gain in body-weight went hand in hand with improvement in nervous symptoms." But this improvement, it should, I think, be pointed out, occurred in a sanitarium where it is to be presumed there were the conditions of rest and isolation as co-operative factors. On the other hand, he found special groups of cases which were partly incompatible with these ideas, and which went to show "that although the two processes of improved general nutrition and returning nervous strength do go so nearly hand in hand, they are not one and the same, and it is not always easy to say which leads." I think it is quite as much the case that improvement in nutrition is an accompaniment of improvement in health and an index of such improvement, as it is the cause. As a state of health begins to return, the body takes on increase of weight.

The fact may be fairly stated to be that the relation of nutrition to health is a general and not a specific one, and just about what every one has known from time immemorial, namely, that people in good health are usually well nourished, and when they begin to break down they lose flesh and gain again when they improve. Conversely, poorly fed and nourished people break down more easily than well-nourished people. They cannot stand the strain or do the work required of them any more than can a poorly fed horse. So, impaired nutrition undoubtedly plays a part in neurasthenia, but it is a co-operative part and not the only or primary one. Neurasthenic symptoms may exist with or without malnutrition; unquestionably, imperfect nutrition tends to increase and encourage fatigue, and fatigue tends to perpetuate symptoms. When malnutrition is present, fatigue is more easily induced, and in fatigue symptoms are more easily excited and tend to persist, habit symptoms are less easily broken up, automatic symptoms continue, and the tendency to relapse and to a return of former symptoms is greater. As Dr. Edes says, we cannot afford to leave wholly out of sight the principle of malnutrition.

I think it would be approximately correct to say that the neurasthenic state is primarily one of fatigue, and that, as a rule, it is more easily brought about when malnutrition exists, and that when malnutrition comes on secondarily, as is apt to be the case, it is more easily cured when the nutrition is restored. But increasing the quantity of fat and blood does not necessarily cause the nervous system to react normally or remove the condition of "fatigue." It does not necessarily increase the quantity of the hypothetical energy-holding compounds in the cells. Making fat and blood bears the same relation to the act of curing symptoms that using steam and horse-power does to hand labor; it makes the work more economical, easier and quicker, but it also, and here the analogy ceases, it also makes the result more permanent.

We may not hesitate, then, to accept formally what most of us think, that the assumed physiological principle, that the neurasthenic state is caused by faulty nutrition, is unsound. The introduction of the device of absolute rest in the treatment — for it is a device to aid the purpose of improving nutrition — does not in any way strengthen the malnutrition principle.

More important than the supposed scientific principles upon which any particular treatment is based are the practical results which are obtained by it. That the rest treatment has been successful in experienced hands, and especially as practised by its distinguished originator, must be accepted, irrespective of any contrary results that may have fallen to the lot of individuals. For myself, I can bear testimony, if at this late date this were necessary, to the brilliant results which have followed Dr. Mitchell's treatment of cases of which I have had personal knowledge. I feel myself indebted to Dr. Mitchell for undertaking the care of a number of severe cases which have always returned to me to bear witness by their restored or improved health, to the skill of this eminent physician. Undoubtedly there are other members of the profession in whose hands the rest cure has given perhaps equally satisfactory results. In its general plan it has been adopted with more or less thoroughness in probably all sanitaria for nervous diseases in this country, and has had an influence upon the general practice of the profession, which can be paralleled only by the late discoveries in bacteriological medicine. To its influence we probably owe the development of a large number of sanitaria which of late years have sprung up throughout the country.

Nevertheless, even if all this be true, there have been certain drawbacks, and I may say ill consequences of the method, and certain difficulties in carrying it out, that make a reinvestigation of the treatment of neurasthenia desirable.

The objections and outs of the treatment may be briefly stated as follows: (A) While we must recognize that the treatment has been brilliantly successful

[1] The Relation of Neurasthenic Conditions to the General Nutrition, with reference to (a) Body-weight; (b) Blood-Measurement; (c) Excretion of Urea, Uric Acid, Indican. By Robert T. Edes, M.D., of Jamaica Plain, Mass. Transactions of the Association of American Physicians, vol. xii, 1897.

in the hands of certain individuals, nevertheless it has been a failure in the hands of others. It is not a treatment which is calculated to give equal results independent of the personal qualifications of the physician; this largely because its fundamental principle has been wrongly interpreted and therefore the treatment itself has been too often improperly carried out. (B) Many cases which are distinctly curable, and which later were cured by other methods, have failed to be cured by the rest cure, although systematically employed. (C) It too often happens that patients improved by this method fail to stay well, but promptly relapse as soon as they are again exposed to their old environments and the wear and tear of life. (D) Many patients far from being cured are made distinctly worse and become more confirmed invalids than ever. The rest cure not only makes use of improved nutrition but employs the most powerful of all therapeutic agents in neurasthenic and hysterical conditions, to wit, every moral influence that can be brought to bear by means of change of surroundings, isolation, active physical manipulation of the body and the personal influence of the physician. When this moral influence has been lost sight of, and reliance has been placed by the physician upon the mere physical details of the treatment, looking mainly to the increase in nutrition for the therapeutic effect, the result is apt to be a failure. Under such conditions, in fact, I do not hesitate to say that the rest cure has done much harm; a result which, as I have said, has been due to a misunderstanding of the real principles involved. When a patient has been for a considerable period of time secluded and absolute rest has been enjoined, and when after the prescribed period the expected freedom of symptoms has not been obtained, I think that, as a rule, a distinct injury has been done the patient; pathological habits of the nerve centres have been strengthened, new morbid associations formed, and the symptoms have become more firmly rooted and more difficult to dispel. In fact, the symptoms are worse and the neurasthenic or hysterical state more fixed. Under such conditions the tendency is to prolong the rest, hoping for an improvement each week, and at the end of each additional week of rest the matter is made worse. In other words, rest and seclusion under such conditions have a tendency to cultivate and strengthen neurasthenic and hysteric habits, and the last state of that person is worse than the first.

Mere improvement of nutrition cannot be relied upon to remove neurasthenic and hysteric symptoms. Mere rest alone, without isolation, without improved nutrition, without strong moral influences, will not do it. Under such a rest it is the too common experience, that so far from being removed, they become more persistent than ever or, even when they disappear, they at once return after restoration to the environment. For this reason I am of the opinion that the rest cure is a method that, when not properly understood in its real underlying principles, is capable of doing the greatest harm, and I do not hesitate to say that it is a most dangerous method in inexperienced hands. I say this not as a mere unfounded generalization or impression, but as a logical induction from an enumeration of quite a number of cases which I have seen in private and hospital practice, treated unsuccessfully by this method.

Finally, a practical objection to the rest cure, even when it would otherwise be effective, is the expense.[2] In some cases this practically debars many patients from its benefit, so that for this reason alone it is desirable that we should have some effective method applicable in most cases.

What method, then, can we suggest to take its place? I am perforce compelled in a paper of this kind to limit myself to certain general principles.

The method of treatment which I have practised during the past eight or nine years with satisfactory results and which I now bring to your notice, is what may be termed for want of a better name, the Educational Treatment, combined with mental therapeutics and physical hygiene. The general mode of procedure may be summarized as follows:

(1) Instruction of the patient in the nature of the symptoms and disease.

(2) Fixed ideas, apprehension and erroneous beliefs counteracted; faulty habits of temperament and character corrected.

(3) Individual symptoms suppressed by electricity, suggestion and other therapeutic agents.

(4) Rules given for the daily conduct.

(5) Improvement of nutrition, moderate rest, and, in extreme cases, isolation from previous surroundings only.

I will briefly consider each of these principles, taking them in a somewhat different order than I have done.

Isolation. — Perhaps the first question in the treatment is to determine how far is isolation necessary. If by isolation is meant not only the separation of the patient from all former surroundings, but a restriction of all intercourse to only the nurse and physician for any considerable period of time; if this is meant by isolation, then I doubt extremely whether it is necessary or desirable in any class of cases, unless it be a few exceptional cases of severe hysteria. Separation from previous surroundings and associations, and particularly not only from all members of the household but from the house itself, is always beneficial and a great help in the treatment. I believe this to be one of the strongest moral therapeutic agents, and as potent as perhaps any factor in bringing about a cure. When, therefore, there are no financial or other difficulties in the way of obtaining a limited isolation of this kind, I would always advise it as a great help, but it does not seem to me that absolute isolation is desirable. On the contrary, I would strongly advise the systematic development of new associations and the encouragement of new thoughts and new mental and physical habits, which are best brought about, not by complete isolation, but by bringing the patient in active contact with the new world in which she is brought. Some cases require a change of surroundings more than others. The more marked the mental symptoms, the more hysterical, the more emotional the character of the disability, the greater the necessity for a separation of this kind, and a change of all external influences. In some extreme cases such a separation is absolutely necessary and any attempted cure is useless without it. It is for this reason that patients do better when they go under a physician's care in a distant city than when they are even under

[2] Properly carried out it involves the cost of board and lodging in a first-class boarding-house or hotel for two persons, patient and nurse, for a period of six or eight weeks, with one or two months' further sojourn in hotels at the sea-side or country. Then the cost of electricity and massage (sometimes extra), the wages of the nurse and the physician's charges for daily attendance all mount up to several hundreds of dollars.

the best of treatment in their own place of residence. The familiar associations of even the streets and acquaintances work for harm, while new scenes, new streets, strange people are strong mental factors for good. But practically it is only feasible for a limited portion of neurasthenics to be removed from their homes, and we therefore have to take the conditions as we find them. Fortunately such separation, although a great aid, is not absolutely necessary in the great majority of cases, and therefore the rule I would lay down is: "Procure separation only where feasible in moderate cases, and insist upon it at all costs in the extreme and worst cases." A nurse is not required excepting in the worst cases.

Education and Mental Therapeutics. — The next part of the treatment, and at the same time the one that is most difficult and interesting, is what I call the education of the patient. It is upon this that we must rely for the suppression of the individual symptoms, the acquisition of strength and the development of habits of body and mind that will enable the patient to return to the wear and tear of life without breaking down. The preliminary step in the treatment is the study of the origin, history and groupings of individual symptoms. It is surprising to find, after a searching inquiry which involves every detail concerning the origin and character of the symptoms, and the conditions under which they arise, how often what seems to be a mere chaos of unrelated mental and physical phenomena will resolve itself into a series of logical events, and law and order be found to underlie the symptomatic tangle. By such a study we can determine what symptoms are pure habit symptoms, of the kind which Dr. Taylor to-day has already described and of which he has given us examples; what symptoms are pure manifestations of hysteria; what are due to faulty ideation or auto-suggestion; what fatigue is due to real physical exhaustion and is true fatigue and what is false fatigue; what pains are due to the diffusion of effort and association and what are due to some real underlying physical cause; what symptoms are due to real disease of organs like the heart or stomach and what to mimicry. After unravelling the symptoms in this way it will be surprising to find how much facilitated will be the removal of them.

For example: Miss D. had what ordinarily would be called neurasthenia, but what I prefer to call hysterical neurasthenia, of two years' standing. Her general neurasthenic condition was easily cured in a few weeks, but there persisted for almost a year after being otherwise well, a pain in the left lower abdominal region. This she had had for two years. She had had various kinds of treatment, gynecological, electrical and drugs without benefit. The pain was of sufficient intensity to cause considerable distress. Careful physical examination by an eminent gynecologist and myself failed to find any physical reason for it. Finally, a searching inquiry previously neglected showed that the first appearance of the pain was after the introduction of a pessary which had to be removed on account of pain and discomfort. The present pain and discomfort are exactly the same in character as that originally caused by the pessary. It is not continuous; it is relieved by exercise and by conditions that would aggravate any local pathological process. The conclusion is then reached that it is a habit neurosis originally excited by the pessary and now continued by sub-conscious ideation and habit. The explanation is accepted by the patient and a cure rapidly follows.

Mrs. R. suffers from neurasthenia which has been unfortunately diagnosed as lead-poisoning. Fatigue is a prominent symptom; she is capable of very little physical exertion, being able to walk perhaps a block. Inquiry shows that her treatment has forced upon her the impression that there is some distinct but mystical disease of the nervous system caused by lead, and she has been unconsciously educated to have fatigue after exertion. Every time she attempts walking she is apprehensive of doing permanent damage. The fatigue is thus shown to be false fatigue and easily cured by mental therapeutics and hygiene, so that in a week or two she takes quite long walks, etc.

Mrs. D., an extreme case of hysterical neurasthenia, suffers from extreme dyspepsia and an abdominal neurosis or paresthesia. Careful investigation shows the dyspepsia to be mostly false and to be really a hyperesthesia of the stomach of probably the same pathology as is the common photophobia of the eyes in neurasthenia. The abdominal neurosis is also found to be of a similar character. The same patient was a notorious sufferer from headaches. These after analysis are shown to begin with true megrim and then to pass into hysterical headaches. The key to the multitude of symptoms exhibited by this patient almost always can be found to be *apprehension* or auto-suggestion.

Mrs. S. suffers from attacks of tachycardia, palpitation, and syncope if she attempts to go out doors. She has been educated to believe she has heart disease, although careful examination by a prominent physician showed nothing organic. These attacks cease when the true nature of them is explained, namely, apprehension and expectation.

Miss V. This was one of the worst and most inveterate cases of cerebro-spinal pain in a neurasthenic of seventeen years' duration, that I have ever seen. From the pain and general fatigue she had been incapacitated for seventeen years and deprived of almost all participation in the ordinary affairs of life. A careful study of the original conditions of occurrence and other peculiarities of the pain showed conclusively that it was an association or habit neurosis. It finally yielded to prolonged and persistent educational treatment.

The second preliminary step is the study of the personal characteristics of the patient, with a view to determining what part mental influences have in the symptoms, and to obtaining the co-operation of the patient. Further, a person who is sensitive, whose feelings are easily wounded, ready to see personal reflections in any criticism of his or her habits, must be very differently treated from one who is thoroughly open-minded, not sensitive and indifferent to criticism, and ready to co-operate in the treatment without regard to personal considerations. This co-operation is a very important factor. The attitude of the physician should be largely that of the trainer to the athlete. He is to teach the patient how to help himself.

Having gained the patient's confidence and co-operation, the rules I would lay down are these: First, remove all interfering mental states that prevent the subsidence of symptoms; these are: (*a*) a fixed idea or belief in the seriousness of the condition and the existence of real organic disease; (*b*) a belief in the

danger or incurability of the state; (*c*) a fear or *apprehension* that any harm can come to the patient from incautious actions, like exercise and doing various things; (*d*) sub-conscious fixed ideas or memories producing hysteric symptoms.

One of the commonest hampering mental states is a belief on the part of the patient that doing things that bring on symptoms is likely to produce serious harm. Most patients do not mind disagreeable feelings so much as they fear that anything that produces them might do them serious and lasting harm. A patient, for example, refuses to go about not because he minds fatigue, but because he thinks that fatigue means serious damage. Another fears to move because of cardiac symptoms which he imagines or has been told indicate heart disease, but does not mind them if he can be assured and really believe there is no cardiac trouble. It is surprising sometimes to see the almost immediate beneficial effects produced by the mere acceptation of the idea that symptoms do not mean disease or lasting injury. With the acceptation of this idea, symptoms sometimes subside at once.

The next point is the instruction of the patient in the meaning of symptoms. The patient should be allowed to understand the cause and meaning of each discomfort; for example, when symptoms are pure habits, due to association of ideas and actions, when fatigue is a false or habit fatigue this should be explained. It is my habit to give a great deal of time to this instruction. It is important to take the patient into your confidence and explain the nature of such symptoms as if one were explaining to a colleague; and above all, when the case is of hysteria to say so frankly, and not conceal the fact, but explain its nature. Next, when tendencies to emotional states exist, states of anger at trivial things, anxiety, fear, worry, nervous shocks, accompanied as these usually are by somatic symptoms, to educate the patient to control and suppress all such emotional states. Here tact, character and individuality on the part of the physician come in.

Suppression of individual symptoms by appropriate therapeutic agents. — Now comes in one of the most important parts of the treatment, namely, the daily suppression of individual symptoms by proper therapeutic agents. Symptoms should, if possible, be suppressed as fast as they arise without being allowed to gather headway and grow, in order that faulty habits and reactions of the nervous system may be broken up at once. It is preferable that the patient should make visits to the physician's office rather than the reverse. When a patient makes a pilgrimage, as it were, for the distinct purpose of being alleviated, the effect of the treatment is generally heightened. For the suppression of symptoms, one of the most valuable therapeutic agents, and one which I find myself making use of more and more in practice, is direct suggestion. This occupies a very prominent place in every case. It may be used in various forms and for different purposes. As to the form which is used, I have rarely of late been obliged to resort to the hypnotic state, but have obtained all the influence that I have needed in a waking state, using for the purpose static electricity where it can be had; the faradic or galvanic battery will sometimes answer. At the same time that the electricity is applied the suggestion is given, and the patient is instructed in the nature and cause of her symptoms and disease, and what is to be expected. In a waking state, a suggestion is more efficacious if given symbolically, so to speak, through some material agent. I myself rely almost entirely upon some form of electricity. I would not overlook the purely physical effect of electricity in neurasthenia. I believe it has a physical influence especially in suppressing painful feelings, and removing fatigue sensations. I would therefore make use, at one and the same time, of both influences, the mental and the physical. In some cases the physical, and in some cases the mental, influence predominates. To illustrate, a patient is directed to come daily at first to the physician's office. The patient's symptoms, we will say, are headache, insomnia, backache and fatigue. The static douche and sparks are used, the present and future effect expected insisted upon; if possible the patient is not allowed to leave until some, or complete, relief has been obtained. The beneficial effect of drugs should not be neglected. Often sedatives like bromide are valuable. Gouty and rheumatic tendencies should be corrected, and the diet carefully regulated, of course, when dyspeptic symptoms exist.

My plan is to take each symptom individually in turn, no matter in what part of the body it may be, and by appropriate therapeutic agents to endeavor to dispel it as fast as it appears.

In some but rare cases of hysteria it may be necessary to go down to the lowest strata of consciousness, and for this purpose the hypnotic state may be necessary. One advantage of hypnosis in such cases as this is that in this state we can often learn from the patient the causes and origin of symptoms which in the waking state are forgotten. For example, Miss F. suffers from attacks of pain in the left side, with various other symptoms, coming on under peculiar circumstances. It is related in hypnosis that they all date from a certain episode involving an emotional shock. The psychical character of such pains is at once demonstrated, and their removal facilitated by suggestion. Many such instances might be cited.

A further value of hypnotic suggestion is that you are sometimes able to make in the hypnotic state criticisms of the patient's habits which will be resented in a waking state. Ordinarily hypnosis is not necessary. Besides suggestions directed to the individual symptoms, others should be given directed to the state itself; for example, that there is no real disease at all, only a lack of harmony in the working of the system, according to the view taken by the physician, always being particular to state the truth and exactly what the physician believes. Suggestions should also be given to counteract fixed ideas, fears, apprehensions and expectations of the patient, and by such suggestions to anticipate future accidents that may arise.

Avoidance of artificial cultivation of symptoms. — Just as education is a most potent factor for good, it may have an equal influence for evil. Caution is therefore most desirable against unintentionally suggesting all sorts of possible evil consequences that may result either from the actions of the patient or from the disease. The physician should be cautious against suggesting himself, or allowing others to suggest, either directly or by innuendo, that fatigue, pain, insomnia, or any discomfort will be likely to supervene under certain circumstances, and above all that any real lasting injury can be done the patient by any effort of any kind. This does not mean that rigid

rules of conduct should not be prescribed; on the contrary they should be, but it should be done with intelligence and judgment. I have seen more than one neurasthenic whose symptoms have been the pure result of unintentional cultivation.

Next, educate the subject's body and nervous system to do whatever it cannot do without symptoms. An educational process of this kind is the same as that which is used in teaching a person in any of the arts or sports. If a person cannot walk without fatigue, he must be taught to do it. If he cannot go to the theatre without pain, he must be taught to do it. If he cannot put food in his stomach without distress, particularly when this distress represents a feeling of dyspepsia, the stomach must be taught to bear food without resulting discomfort. This is the opposite of the system which would suppress every action which cannot be accomplished without discomfort. Some physicians, I find, have a habit of restricting a patient from doing whatever cannot be done without pleasure and comfort. The result of this is that the symptoms tend to grow and increase until finally the restriction must be proportionately increased, for example, a patient who cannot walk without fatigue, a fatigue that is evidently false, if cautioned too severely and restricted, will evidently end by becoming confined to the house and thus to the bed. If the co-operation of the patient is obtained as above, this is unnecessary.

Finally I would say, in regard to the educational part of the treatment of neurasthenia and hysteria, it is most important that a methodical regularity of life should be enjoined, almost each hour of the day being filled up by the physician. This both for its moral and physical effects. To summarize once more the daily educational treatment:

(1) Instruction in the nature of the symptoms and disease.

(2) Fixed ideas, apprehension and erroneous beliefs counteracted, faulty habits of temperament and character corrected.

(3) Individual symptoms suppressed by electricity, suggestion and other therapeutic agents.

(4) Rules given for the conduct during the succeeding twenty-four hours.

Food and Nutrition. — When faulty nutrition exists of course it must be corrected on general principles of health. We cannot expect permanent robust health with endurance for bodily activity so long as the body is underfed. For this purpose my plan has been to give five to six raw eggs daily in addition to the meals, one between each meal and one immediately after each meal on leaving the table, and one at bedtime. The eggs are to be swallowed whole without the yolk or albumin being broken. This is a trick easily acquired. Any other form of nourishment may be substituted, but this is the most practical. Increase of weight, it must be remembered, is an adjuvant or co-operative factor, not the end sought.

Rest. — A certain amount of rest *must be given.* What amount of rest is required? Absolute and continuous rest I have of late years rarely used, excepting in cases that are already more or less bed-ridden. I find it not only unnecessary but a distinct disadvantage in the majority of cases. The only advantages are: First, the moral effect. This may, if properly made use of, be great; but I cannot help thinking that the same moral effect can be obtained in a more straightforward way by appealing directly to the intelligence of the patient. Second, when severe dyspepsia is present it enables us to get along with smaller quantities of food while we are educating the stomach to take larger quantities. The disadvantages are distinct. (A) At the end of a period of four or six weeks we have, in addition to the fatigue of the disease to contend with, the weakness from prolonged rest. (B) It tends to cultivate habits of fatigue and other nervous symptoms after effort. (C) Absolute rest requires the constant attendance of a skilled nurse, whose qualities are not easy to obtain, and the more continuous attendance of the physician. (D) It requires massage and electricity to counteract the deleterious effect of rest. (E) It taxes the ingenuity of the physician to fill up the time. (F) We lose much time in beginning the educational treatment of the patient, in teaching self-control and breaking up faulty habits. (G) It is unscientific and unnecessary.

But some amount of rest above that of a night's sleep a patient must have, and for this reason: there is a limit to the endurance of every person. The average person perhaps finds eight hours' sleep sufficient, giving sixteen hours to the wear and tear of life, or fatigue-producing occupations, including pleasures. Of these sixteen, nine can be used for actual work and the remaining seven for recreation, exercise, feeding, etc. But the seven thus spent are also fatigue-producing hours. Now the essence of neurasthenia is a lack of endurance and easily induced fatigue, with delayed recuperation, so that a neurasthenic, instead of being able to give sixteen hours, can only spare eight or ten to fatigue-producing occupations. It is therefore necessary to cut down the day hours during which a neurasthenic is exposed to the wear and tear of life, including pleasures. Now when fatigue has been produced it does not matter whether it is true or false fatigue — the patient is incapacitated for further exertion. I have always found it useless to push patients when this point is reached; if it is done the result has almost always been disastrous. The patient can be educated or trained but not pushed, just as an oarsman can be trained to do a double amount of work but he cannot be pushed at first beyond his strength.

The rule I would make then, is this: Divide up the day into alternate periods of rest and occupation. See that sufficient rest is given, taking the peculiarities of the individual case into consideration; and having done this, see that the occupation periods are utilized in training the body and mind. Instead of absolute rest then I would insist on the opposite or active use of the nervous system for certain periods of time. It is important that the hours of the day should be actively filled up with little time left on the hands of the patient.

The principle is, see that enough rest is given, and being satisfied of that, see that the remainder of the time is spent in education and training, and provide as much hygienic occupation as the patient will stand. If a neurasthenic cannot sit up ten minutes, she can one, which will soon become ten. If she cannot drive twenty minutes she can ten.

General Wood's Powers Enlarged. — The jurisdiction of Military Governor Wood, formerly colonel of the Rough Riders and before that a surgeon in the army, has been extended by President McKinley, until it now embraces the entire province of Santiago de Cuba.

THE PHYSIOLOGICAL EFFECTS OF COMPRESSED AIR.[1]

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MANKIND is a group of animals adjusted to an atmospheric pressure varying but slightly from that of 760 millimetres of mercury. Any great deviation causes interesting physiological disturbances. The earliest demonstration of this fact was made unwittingly by mountain climbers. After reaching heights of two miles they found the respiration rapid, and the pulse quickened, causing painful throbbing headaches. Blood flowed from the nose, eyes and mouth; there was also nausea and vomiting much as in sea-sickness.

All animals do not suffer thus. The naturalist Humboldt, after climbing the Cordilleras, gazed with envy at the condors soaring calmly at an altitude which he calculated to be about 18,000 feet. Every now and then they plunged down to the surface of the sea, passing in a few moments of time through an enormous range of barometric pressure and all the climates of the globe, yet experiencing no inconvenience — birds which ought to find New England congenial.

Although mountains reaching into rarefied air are numerous, the world must be traversed to find valleys deep enough to possess a sensible increase of atmospheric pressure. There is one in San Diego County, California, 360 feet below sea-level, which is used as a health resort, but the results of its slightly compressed air are not appreciable. A deeper valley is that of Lake Assal, east of Abyssinia, which lies 760 feet below the sea, but there no recorded observations have been made. In deep mines the dust and vitiated air render experiments of no value. We must resort consequently to artificial modes of compression.

At the beginning of the sixteenth century diving-bells were invented in which some crude observations were made. Dr. Colladon was lowered 30 feet for purely scientific purposes. He noted at once an oppressive sensation about his ears, due to the forcing inward of the tympanum. The pain was easily relieved by swallowing. The physician writes that as he went down he was "in a state of excitement as if he had drunk some spirituous liquors," there being a sensation of pressure about the head. On returning to the surface it was different. It seemed, he said, as if his head was becoming very large, and his skull was on the point of disarticulating.

So much for the diving-bell, an invention which is now seldom used, except for problems in physics. It gave rise, however, to an elongated modification into which air was forced until the water was entirely expelled; and this machine is the modern caisson. Caissons are constantly used in mining and bridge-building, and make the study of the physiology of compression a matter of great practical importance. As shown in the diagram a caisson is composed of a series of short metal tubes, securely bolted together, the number of which is increased as the pile descends. The interior of the tube is filled with cement, except for a passage-way from top to bottom, and a space below for the workmen. After the excavation is finished, these spaces also are filled with cement. At the top of the apparatus is the connection with the air blast which forces air into the shaft so that it escapes in bubbles from below. To enter the tube, the workman opens the door, *a*, enters the chamber and shuts the door behind him. By turning a stop-cock on the inner wall compressed air is made to pass from the shaft into the chamber, until the pressure on the two sides of the door, *b*, is equal. The door is then opened and the descent made. On leaving the shaft the workman uses the door, *c*, which opens into a chamber of compressed air. After closing the door, he opens a stop-cock connecting with the air outside and the pressure returns to the normal. In this room, then, the release from pressure or "decompression" takes place, and during the process many accidents have occurred. The pressure sustained in the caissons is often as high as three or four atmospheres. Workmen on the Eads Bridge at St. Louis labored an hour at a time under a pressure of 4.45 atmospheres.

Now we may consider the effects of a sojourn in this apparatus. First of all is the annoying sensation about the tympanum already described. Occasionally the pressure is great enough to cause partial or complete deafness by rupturing the drum. Then, at a pressure of three atmospheres, there arises an irritation of the skin called the "puces," which is characterized by an unbearable feeling of warmth.

The voice is altered; its pitch becomes higher and it acquires an unnatural nasality. Whistling is impossible, for reasons set forth in a recent number of the "Sitzungsberichte der Gesellschaft für Morphologie und Physiologie."[2]

Respiration is rendered deep, slow, and easy. The pulse-rate is variously affected, if we believe all we read. Pol and Wattelle with others find it diminished, for example, from 70 to 55 per minute. Bucqroy noted a rise of from 76 to 83, and his observations are confirmed by Dr. Bauer, of St. Louis.

Digestion is active, but there is no thirst. The secretions, notably that of saliva, are increased; as also the excretion of urine.[3] Accidents during the stay in compressed air are uncommon, yet some fatal cases are recorded.

Leaving the pits is virtually going into rarefied air. The puces is replaced by a chill. Respiration becomes difficult, the pulse is rapid and hard. Very often there is transient pain in the joints and muscles and sometimes persistent cramps. Another class of accidents affects the nervous system, causing various forms of paralysis or coma. A man may lose consciousness as he enters the open air and die in a few minutes.

Autopsies have revealed three interesting conditions. These are: (1) A congestion of the abdominal viscera, namely, the liver, spleen and kidneys. Pol and Wattelle report two cases of this sort. (2) Emphysematous spots on the lungs and other indications that the blood contained bubbles of gas. This condition was found in two cases by Dr. Gallard. (3) A softening of parts of the spinal cord and brain. Sometimes the medulla only is affected; at others the cord may be nearly fluid for several inches; or the degeneration may be general. The brain in many of these cases is overcharged with blood.

Considerable study has been directed toward finding some means of reducing the number of fatalities, which is very great (for example, twelve among the 352 workmen on the Eads Bridge). Pol and Wattelle de-

[1] Read in the Physiological Conference of the Harvard Medical School, May, 1898.

[2] Von Liebeg, München, 1897, vol. I, 13.

[3] Barella to the contrary.

clared that too rapid decompression lay at the root of the evil and advised a more gradual release from pressure. Foley, on the contrary, ordered the men to hasten into normal air when they felt the chill coming on. Eads believed that the length of time spent in the pits was the main factor, since visitors who were in the caissons for short times, never suffered as did the workmen, although subjected to equally rapid decompression. The disagreement as to the relative injuries from compression and decompression might have been settled by the French courts. An engineer claimed damages for injuries alleged to have resulted from a too sudden release from pressure. The scientists were eager for the discussion, but the judges, probably suspecting what was in store for them, ruled the case out.

Gentler pressures than those of the caissons are used in the "aëro-therapeutic establishments." It was found that persons having obstructed air passages were relieved on entering the pits, and this suggested a new treatment which became very popular. In the thirties many of the large cities of Europe had these chambers of air at a pressure of between one and two atmospheres in which the sick spent hours at a time. In 1863 the enthusiastic M. Caffe writes: "We shall be in possession of an ingenious therapeutic agent to relieve asthmatic and catarrhal old fellows, and to spirit away the agonizing pain of those afflicted with angina pectoris, who become blue and faint in the pursuit of air which escapes them. We may hope to save the victims of croup. Compression will flatten the false membranes and allow free passage of air. Perhaps even typhus, glanders, and similar diseases will be rendered harmless by compressed air which oxidizes the blood so readily." At the present time, however, physicians hesitate to use the apparatus for fear that it may do more harm than good.

Thus far we have reviewed the claims of the physiology of compressed air for investigation, and described the apparatus used and the results obtained from the experiments performed whenever a great bridge is built. Now we are to consider the work of the physiologist. Experiments have been made on all sorts of organisms, from yeast plants and flies to soprano singers and violinists. The results have been made to account for facts ranging from the laziness of Mexicans to the cold of the glacial epoch. We must confine ourselves, however, to the effects on respiration, gas absorption and, finally, on the circulation.

First, as to the number of respirations per minute. Cyon, experimenting on dogs, found a slow decrease until a pressure of two atmospheres was reached, beyond which the fall was rapid. Panum also found the number decreased under various conditions:

Tranquil respiration	from 14.2 to 13.5
As deep and rapid as possible . . .	from 12.7 to 6.4
As slow and light as possible . . .	from 5.8 to 4.2

Vivenot shows the effects of continued subjection to compression. He spent two hours a day for three months in a medical chamber, and his rate fell from 18 per minute to 3.4 when in the chamber, or 4.5 in normal air. The respiratory rate is therefore decreased in compressed air.[4]

The ratio between the time of inspiration and that of expiration is affected. Vivenot considered that the greater atmospheric pressure distended the lungs, making the action of the expiratory muscles difficult as they met an increased resistance. Inspiration would be easy and rapid, expiration difficult and slow. These relations he illustrated by a diagram.

Panum made a direct tracing showing that the relations were unchanged. Since the increased pressure acts both inside and outside of the chest walls its effects might be neutralized. But Liebig confirmed Vivenot's observation by recording the time of inspiration and expiration in two extreme cases with these results:

	Pressure	720 mm.	1040 mm.
CASE A.	Time of inspiration . .	4.48 sec.	4.19 sec.
	" expiration . .	8.74 "	11.59 "
	" complete respir.	13.22 "	15.78 "
CASE B.	Time of inspiration . .	1.54 "	1.49 "
	" expiration . .	2.25 "	2.72 "
	" complete respir.	3.79 "	4.21 "

The time of inspiration is decreased, that of expiration increased, and the time for a complete respiratory movement is increased in compressed air.

The lung capacity is altered by increased pressure. Panum's experiment serves to bring out clearly the essential conditions. He took a flask with a membranous floor representing the abdominal wall, filled it with water, corresponding with the body fluids, placed in it a closed bladder of air for the intestine, and another bladder connecting by a tube with the outer air for the lungs and trachea. The whole was corked and placed in compressed air. The abdominal wall was flattened or pressed inward, the intestines compressed, and the lungs expanded in all directions. As a matter of fact, the pressure on the abdominal side of the diaphragm is great enough to prevent any elongation of the lungs. As Pravaz states, there are two effects on the lung capacity: (1) The lungs are not ordinarily distended to their full extent. Compressed air by increasing the force which struggles against the contractility of the pulmonary tissue enlarges the lungs. (2) The compression of the abdomen adds to the resistance encountered by the diaphragm. The vertical diameter of the chest may even be reduced, but this is more than made up for by the antero-posterior dilatation. Vivenot found by using a spirometer, that the lung capacity in his machine was increased 3.3 per cent. After his three months' treatment his own lung capacity was increased by 24 per cent. or 743 c. c., and the circumference of his chest 1.5 cms. An increase persisted months after the treatment was stopped.

Under compression then, more air passes through the lungs in a single respiration than is normal, for not only would an equal volume of compressed air contain more air, but the volume is increased. It passes through in fewer but deeper respirations in which the inspiration is rapid and the expiration slow.

We may now consider the absorption of gases by the blood; first O and the formation of CO_2, and then N. The absorption of a gas by a liquid depends on three factors, the temperature, the relative solubility of the gas and the pressure. Only one of these is altered in compressed air; the pressure is increased.

Oxygen is not ordinarily absorbed, but enters into chemical combination with hemoglobin, nine-tenths or fourteen-fifteenths of which is saturated in normal air. In compressed all the hemoglobin may be saturated and some oxygen may be dissolved in the plasma. Bert's experiments led him to believe that such was the case. His analyses gave the following results,

[4] Sandahl found an increase in rate in 11 persons out of 75. Speck obtained an increase. Liebig a decrease. Average 16.5-15.9.

the amount of oxygen absorbed under normal pressure being placed at 20 vols.:

Atmospheres.	Oxygen.
1	20
2	20.9
3	21.6
5	22.7
7	23.1
10	23.4

Speck also finds an increase in the oxygen absorbed. The effects of the additional oxygen are not apparent. It has been called upon to explain the increased appetite and secretions. The red color of the venous blood in persons who died from working in caissons was noticed by the early observers.[5] The dissolved oxygen was supposed to replenish the corpuscles as they supplied the tissues. This is doubted by later investigators, who have looked in vain for the red venous blood. Bert alone made much of the excess of oxygen, stating that when increased in the blood by one-third of its volume it became poisonous; that the tissues except the red corpuscles were anaërobic. This, of course, is abundantly disproved by experiments in which animals live in pure oxygen.

As to the CO_2 expired there is difference of opinion. Vivenot found that he exhaled in one hour 54.1 grs. of CO_2 in normal air, 60.3 grs. under compression. Panum ridiculed these figures as absurdly large and surprised himself by reaching a similar conclusion with smaller figures. He concludes that the CO_2 exhalation is relatively and absolutely larger in compressed air. Liebig found it decreased. Bert's analyses showed no definite changes.

The nitrogen analyses are more satisfactory. Its absorption increases with the pressure as shown by Bert:

Atmospheres.	Volume.
1	2.2
2	3
3	3.9
5	6
7	7
10	9.4

This has not been contradicted.

We have then in the blood an increase of gases in solution placed there by mechanical laws. The liberation of these by decompression is supposed by many to be the primary cause of accidents. Mericourt long ago said that a man in compressed air is in the position of a bottle of water being charged with CO_2 as in making soda water. Release the pressure and the gases tend to effervesce, death ensuing as when air is admitted directly to the circulation. The hypothesis is supported by many experiments done by Heller, Mager and Schrötter. They found in some animals killed by compressed air that the blood-vessels of the mesenteries and brain were filled with bubbles of gas. They conclude that after sudden decompression, free gas can be detected in the circulating blood. This gas is almost exclusively nitrogen. If the stay in compressed air is long enough and decompression sufficiently rapid, there arise disturbances of the heart and lungs which may be fatal, also disturbances of the nervous system, especially the spinal cord. All these effects are due to the presence of gas in the blood-vessels. A speedy return to compressed air affords relief in many cases.

Finally we come to consider the effects on the circulation. As to the pulse-rate, the observations already quoted disagree. It may be added that Vivenot found an increase of 4.7 beats per minute; Sandahl an average decrease of 9.9 beats. Since there is little chance for faulty methods, it may be presumed to vary.

When rabbits were placed in compressed air, it was noticed that the ears became pale and the blood-vessels of the eyes disappeared. This observation is well established. However, Poiseuille by placing young rats and salamanders under his microscope and then compressing the air about them saw no alteration in the circulation. Heller, Mager and Schrötter after many experiments found no congestions. Animals trepanned and those which were not, placed side by side in compressed air showed a similar distribution of blood in the brain. In spite of these negative results, the fact remains that in rabbits the blood very plainly withdraws from the periphery. This may be due to one of two causes. First, a general vasomotor activity. Second, the purely mechanical effects of compression. In the first case there would be a general rise of tension; in the second there might be a rise, or there might not if the effects of constriction of some vessels were balanced by stretching of others.

Cyon in a careful experiment on a rabbit under a pressure of two atmospheres, observed that the cutaneous vessels were emptied, but as shown by a manometer, there was no general rise in the blood tension. The effects are therefore not due to the vasomotors. Bert, however, found a "notable increase" in the arterial pressure. Vivenot drew some curves with a sphygmograph connected with the radial artery. The tension rose with the compression; the pulse curve lost its notches and flattened into a nearly straight line.

Martin's experiments go further. He found that when the compressed air was applied to the lungs only, there was a temporary fall in the pressure. The pulmonary capillaries were stretched and an increased flow to the lungs caused the diminution. When compressed air was applied only to the surface of the body there was an increase of pressure, probably due to the forcing of blood from the cutaneous vessels. These experiments all indicate that equilibrium in the blood pressure is upset by compression. Blood is driven from the surface, it goes to the brain causing paralysis, or to the deep-seated viscera causing fatal congestions. Decompression would seem to relieve these conditions, but one writer suggests that the sudden expansion of the viscera drives out the blood stored in their vessels to the cord and brain; hence the results of a sudden release from pressure.

Two hypotheses to account for caisson accidents have been presented. One is based on the increased absorption of gases by the blood; the other on the mechanical disturbances of the circulation. They are not contradictory. *A priori* reasoning, experiments on living animals, and autopsies revealing sometimes emphysematous spots, sometimes congestions, support both. But the investigators have not taken this view of the matter. Their earnestness in supporting one hypothesis has been proportionate to their vigor in denouncing the other. The gas-bubble theory, affording such a ready explanation of decompression accidents, has much in its favor. Furthermore, we do not find accidents while the air is being compressed, when, according to the other hypothesis, we should expect a rush of blood to the head. For these reasons we are tempted to ignore the well-established disturbances of the circulation, a course not justified at present. We

[5] Pol and Wattelle and Francois.

must wait for future investigators to reconcile their predecessors.

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FORMALDEHYDE GAS AS A DISINFECTANT.[1]

BY DAVID D. BROUGH, M.D., BOSTON.

SINCE the discovery of the germicidal powers of formaldehyde gas this agent has been the subject of rigorous investigation by a large number of observers, both in this country and abroad. The most improved methods of scientific investigation have been applied to it. Many things are now known concerning the gas that are absolutely certain, while many of the extravagant claims that were first promulgated have been proved to be based on insufficient evidence. There are some questions that have not yet been satisfactorily answered, and more experience with the use of the gas will further enlighten us. In general there has been a harmony in the results of all observers while there may be a wide divergence in some of the minor points.

It is simply my desire to present, as far as I am able, the value and limitations of this agent in practical disinfection, that have been drawn from practical experience during the year and a half in which formaldehyde has been used by the Board of Health of the City of Boston. I think that the Board of Health of this city has been among the first, if not the first, to introduce this gas in the routine work of municipal disinfection.

All the experiments that I have conducted have been carried on in the various dwellings of the city which have required disinfection on account of having contained some case of infectious disease. All the tests were made under conditions as they actually occur. Having been made in the various houses, the results may differ in some respects from those performed in laboratories or especially constructed chambers.

The gas was discovered by Van Hoffman in 1868. He found that the vapor of wood alcohol coming in contact with finely divided platinum gave rise to a product to which the name of formaldehyde was given. It is a product of the oxidation of methyl or wood alcohol. The oxidation results in the removal of the hydrogen from the alcoholic vapor forming formaldehyde. Its chemical formula is CH_2O. The gas can be prepared by bringing the vapor of wood alcohol properly mixed with air into contact with a metallic powder heated to dull redness. The contact of the alcoholic vapor with the metal continues to keep the metal heated. The substances most used are platinum, copper, iron-oxides and coke. The most active substance is spongy platinum or platinum black.

[1] Read before the Massachusetts Medical Society, June 8, 1898, and recommended for publication by the Society.

The gas is colorless, has a penetrating pungent odor, and is extremely irritating to the mucous membrane of the eyes, nose and throat. Its specific gravity is about the same as air. It renders gelatine insoluble and coagulates albumin when in the solid form. When added to a solution of serum albumin it prevents coagulation by heat. Pieces of meat exposed to the gas have been preserved for a long period of time.

The odor of formaldehyde is easily dissipated by the evaporation of ammonia. After disinfection the odor of formaldehyde can be neutralized by injecting a little ammonia into the room. By cooling, the gas can be mixed with water up to the proportion of 40 per cent. by weight of the gas. It is in this saturated aqueous solution that the gas appears in commerce under the name of formalin.

When the aqueous solution is allowed to evaporate in the air it becomes concentrated, forming a substance known as para-formaldehyde, which is a union of two molecules of formaldehyde gas, and when further concentration goes on a white amorphous powder, known as trioxymethylene, is formed. This latter form is supposed to be composed of the union of three molecules of the gas. From both these polymerized forms the gas can be derived by the application of heat. The antiseptic and germicidal powers were, it is said, first noted by Trillat, of Paris, in 1888, and in 1891 an account of these properties was published by him.

The disinfection of rooms is performed by formaldehyde in the gaseous state. This gas can be obtained in several ways:

(1) By means of lamps directly from wood alcohol.
(2) From the solid form.
(3) From the solutions of formaldehyde.

But from whatever form the formaldehyde is obtained, the results are derived from the gas that is generated. The various preparations in which formaldehyde appears, and the different kinds of apparatus, are but convenient methods of utilizing the gas.

DIRECT GENERATION OF THE GAS.

Probably one of the first lamps in this country for the generation of the gas on a scale sufficient for general disinfection, was devised by Professor Robinson of Bowdoin College. There are many modifications of this idea on the market.

In general, the principle is to bring the vapor of wood alcohol properly mixed with air in contact with platinized asbestos which is thoroughly heated. This method has been tried in this city and in others but has now been generally discarded. The objections to this process were the dangers of fire, the difficulty of knowing whether the apparatus was working properly when shut up in a room, and the difficulty of bringing the vapor of the wood alcohol directly in contact with the platinized asbestos disk. After being used for some weeks in this city it was given up. While good results have been obtained from experiments with this method, it was found impracticable for municipal disinfection.

With the generation of the gas from the combustion of paraform pastilles, I have had no personal experience. The excessive cost of this method would be almost prohibitory for its use on the scale demanded by municipal disinfection. In the hands of those who have used it, excellent results have been obtained. The conclusions were about the same as have been ob-

tained by deriving the gas from the aqueous solutions. It is, however, a neat and simple method of obtaining the gas.

The gas can be obtained readily from the 40 per cent. aqueous solution. Disinfection in small closed spaces can be accomplished by allowing the solution to evaporate in open vessels or pans, but only a small portion of the total gas is given off. This is due to the fact that polymerization occurs and the solution becomes concentrated into the solid form and little gas is given off. In larger rooms this method would be wasteful and unsatisfactory. In laboratory tests fair results have been obtained.

Dr. Kinyoun of the Marine-Hospital Service could not obtain satisfactory results in disinfecting rooms by saturating clothes with formalin and allowing the solution to evaporate in the room. In some late experiments by the Chicago Board of Health it is claimed that sheets, wet with the solution, suspended in the room and allowed to dry, gave as good results as other methods. The inconvenience of this process in dwelling-house disinfection has prevented any tests being made in this way. Nor can disinfection be accomplished by mixing formalin and water and simply heating the mixture in a closed vessel not under pressure. In the tests of Dr. Harrington of Boston at the City Hospital the results were unsatisfactory and no disinfection was accomplished. A large amount of the formalin became polymerized at the bottom of the vessel. It is necessary, therefore, owing to the fact that polymerization occurs, that some form of "regenerator" should be used, of which there are a number on the market. We have used two forms. In one the aqueous solution is heated in a closed cylinder until a pressure of three atmospheres is attained and then the gas is allowed to flow through a tube and pipe, which is passed through the keyhole of the door of the room to be disinfected. In the other form the solution passes from the cylinder into a copper tube which is coiled over a lamp, and then becoming superheated the gas passes through the tube and pipe through the keyhole of the door. The first form has been preferred, as it discharges a very much larger amount of gas in the same period of time, and is not so liable to get out of order. The second form, however, obviates any danger of explosion which may possibly occur in the first method. It has never been found that with care, there was any danger of explosion. These machines are kept outside of the rooms and their working can be observed by the operator. We have found no benefit whatever to result from mixing the formalin with calcium chloride over that of the simple 40 per cent. aqueous solution. Other observers agree in this. It must be recollected that the disinfection is accomplished by the gas, and not by the apparatus, as some manufacturers would have us believe. That form of apparatus is best which will conveniently deliver the largest amount of gas in the shortest period of time. Through the courtesy of Dr. Ernst I was enabled to perform this bacteriological work in the laboratory of the Harvard Medical School.

The tests were made of silk threads and gauze strips which were saturated with bacilli from twenty-four to forty-eight hours' bouillon cultures. Most of them were placed in the rooms in the dried condition, as it was desired to make the tests correspond as nearly as possible with the conditions under which we would find the organisms in infected houses. Wet cultures were also used in many of the experiments. All the ordinary pathogenic organisms were used, but the diphtheria bacillus of a high toxin-producing power, and from fresh throat cultures, was regularly employed, as this is the known organism for which disinfection is carried on. Some tests were made with a non-pathogenic spore-bearing organism, and cultures were made from the dust of the rooms before and after disinfection. Freshly inoculated serum tubes of the various organisms were placed in the rooms, both open and plugged. Control cultures were made in every case, and in these growth was obtained in twenty-four hours.

The conclusions were drawn from the seventy-two hours' result in the incubator. The threads were placed in the nutrient media in the rooms directly after the disinfection with sterilized forceps.

Bouillon and Löffler blood-serum mixture, in tubes, were the media employed. The bouillon shows whether the disinfection was complete. On blood serum the amount of disinfection and the inhibitory effect of the gas could be more approximately judged by the number of colonies; microscopic examination was made in every case to determine the nature of the growths.

The general results were obtained from thirty-six houses, in each of which from six to twenty tests were made. The dwellings in which the tests were made were scattered throughout the city. The houses were of every description and variety, although most were among the poorer classes. The conditions were not favorable for obtaining the very best results, and the conclusions must certainly give a more approximate idea of the value of the gas than those carried on in absolutely tight rooms or under more favorable conditions. Nothing was removed from any of the rooms. The furniture, upholstery, bedding, wearing apparel and all other articles were left in their places. Beyond spreading out the clothes and bedding, opening doors of cupboards and closets, opening drawers so that all surfaces might be exposed as much as possible to the gas, nothing was done in the way of preparation.

The crevices about the windows, cracks of doors, fissures in walls, loose flues and other places through which the gas could escape, were closed by pasting them with narrow strips of gummed paper. This is made for the Board of Health in rolls of about one inch wide. After closing the door and pasting the cracks, the gas was introduced through the keyhole.

The gas enters into the room in practically a dry condition. In repeated experiments no special difference could be noticed in the amount of moisture in the rooms before and after the introduction of the gas, as noted by the readings of the wet and dry bulb thermometers.

Conclusion for Surface Disinfection.

Whenever the gas in sufficient amount comes in contact with pathogenic organisms, they are invariably killed.

Spore-bearing organisms are killed with more difficulty than those that are not spore-bearing, and the results with non-pathogenic are not so constant as with pathogenic organisms. The position in the room makes no difference. Those placed close to the ceiling, those on the floor, and those at points midway between these, were equally sterilized. Threads stretched from the ceiling to the floor were completely

sterilized. Currents of air near the test objects interfere with the action of the gas. In the experiments of Robinson and Bryant, of Bowdoin College and Dr. E. M. Parks, of New York, threads that were placed on the window sills or near cracks of doors were frequently found not to be sterilized.

The gas apparently acts equally well on both wet and dry cultures. This was my experience with silk threads and squares of gauze. The same results were found by Parks and Robinson and Bryant. Dr. Harrington, of Boston, in his experiments at the City Hospital, found that organisms on dry surgical dressings were completely killed, while with wet dressings only those on the surface were destroyed. Organisms growing in bouillon exposed in Petri dishes could not be killed.

The dust of the room was sometimes sterilized, sometimes not. A spore-bearing bacillus was frequently found not acted upon by the gas. The number of colonies in a measured quantity of dust was invariably found much larger before than after the disinfection. Generally after exposure only a few colonies were found.

Dr. McCollom, of Boston, in his experiments found that the gas acted as well on the discharges from nasal diphtheria and diptheritic membrane as on cultures grown on artificial media, when they were directly exposed to the action of the gas.

PENETRATION.

In ordinary disinfection these tests would prove that the gas has very little penetrating power. It was the invariable result that cultures, whether wet or dry, when placed between mattresses, between pillows, between the folds of mattresses, in the centre of pillows, between the leaves of books and between solid objects, were not killed. When the organisms were wrapped up firmly in layers of blankets or heavy articles they were not rendered sterile; placed in pockets of coats and trousers, dresses, or wrapped up with light articles as sheets, handkerchiefs, etc., the organisms were sometimes killed and sometimes not. When placed in drawers left open slightly, they were killed; when the drawers were closed they were sometimes killed and sometimes not. When the threads were placed in the bottom of test-tubes, and these tubes were left open in the vertical position and exposed to the gas, growth was frequently found. When these same tubes were placed in the horizontal position, and the threads placed near the mouth, the organisms were killed. Freshly inoculated serum tubes, with the cotton plugs in, would always yield a growth. The same tubes with plugs out only gave slight growth at the lower portion of the serum slant. The opinion of all recent observers is that the gas is a poor penetrating agent under ordinary conditions. This is the conclusion of Dr. Doty, of New York, Robinson and Bryant, Dr. Wilson, of Brooklyn, Dr. E. M. Parks, of New York, Drs. Harrington and McCollom, of Boston, and others.

In experiments with absolutely air-tight receptacles and bags and in the use of the gas by the vacuum method, with which I have had no personal experience, the penetrative power of the gas was found much greater.

Dr. Doty, of New York, has found that penetration is much increased with a vacuum. Dr. Wilson, of Brooklyn, was able *in vacuo* to kill organisms, even anthrax spores, in mattresses or wrapped in heavy blankets. Dr. Wyatt Johnson, of Montreal, has been able to secure complete sterilization *in vacuo* of objects in tightly rolled blankets. Robinson and Bryant, of Bowdoin, found with an excess of gas in air-tight bags, penetration could be secured through rather bulky articles. Other observers found similar results. Dr. Harrington says that "In presence of moisture the penetrating power is practically *nil*."

For penetration under ordinary conditions the gas has no especial value.

EXPOSURE.

In my own tests I have found no difference in results from exposures of five, six, seven hours and upwards. As good results were obtained in the shorter period of time as in the longer. If the results with a certain amount of gas were not satisfactory with a short exposure they never were with a longer. It would seem that the work of the gas was accomplished quickly.

Dr. Doty thinks an exposure of six hours is sufficient.

Dr. E. H. Wilson says: "It is preferable to allow the gas to remain as long as possible, but from three to four hours is sufficient for good disinfection." In surface disinfection he was able to kill the ordinary pathogenic organisms in four hours.

Dr. Parks, of New York, says: "The time of exposure not to be less than two hours, better to give four to six hours."

Dr. Harrington has found that "the organisms will be killed in from one-half to three hours, varying with the amount of the gas used." Bryant and Robinson state that "the room should be closed from ten to twelve hours."

Dr. J. J. Kinyoun says: "The length of exposure is secondary to the amount of the gas, and a larger amount will give better results than small, even prolonging the length." He further states that fully twelve hours' exposure should be given. I think that most later observers in the main agree that as good results are accomplished in short exposure as in long.

INFLUENCE OF TEMPERATURE.

Within the range of temperature, such as occurs in ordinary disinfection, the gas seems to act perfectly well. With a low temperature, below 35° F., my results were not so satisfactory, even using large amounts, as with a higher temperature. It would seem that very low temperatures interfere with the action of the gas. Other observers have found that the gas is more active at a fairly high temperature. In general, the majority of observers have found equally good results between 50° and 110° F.

What is the amount of formalin necessary to generate gas sufficient to disinfect 1,000 cubic feet in ordinary rooms?

On this question there is a very great variance amongst different observers, even when using the same form of regenerator. Some have obtained complete results with very small amounts, while others using small amounts have claimed that formaldehyde was useless for disinfection. Most of the poor results seem to have been obtained from using too small amounts of the gas. With nearly air-tight rooms, or rooms where there is little absorbent material, we can get much better results with small amounts. In ordin-

ary dwellings, where there is always considerable leakage, and where there is a great amount of bedding, upholstery, clothing and plastering which must necessarily absorb a large amount of the gas, very much larger quantities have been found necessary. Generally with small amounts of from 4 to 12 ounces to 1,000 cubic feet, I could not get very good results; occasionally they would be good. But on increasing the amount the results were much better To get satisfactory results in house disinfection, I agree with Dr. Wyatt Johnson of Montreal that at the very least one pound of formalin to 1,000 cubic feet should be used, and it would be better to use even considerably more. In this city it is the custom to use nearly a quart to the 1,000 cubic feet, and the varying and inconstant results with small amounts have not been repeated.

INFLUENCE ON HOUSEHOLD GOODS.

In our experience in this city there has never been any injurious influence exerted by the gas upon any article of household furniture, clothing, bedding, upholstery, carpets, or on any ornaments, pictures, gilding, or on wall-papers. Further, no person has complained of the gas causing any injury to his goods, and this after the use of formaldehyde in many hundreds of houses in all grades of society.

Dr. Kinyoun, in his experiments with 225 samples of wool, cotton, textile fabrics, hair, fur and leather, found them unchanged by the gas. Colors are not affected with the exception of the aniline color fuchsine which is changed to purple; all other observers practically agree in these results.

INFLUENCE ON ANIMAL LIFE.

Our opportunities for observation in this line have been limited. Dogs and cats which have been left in rooms were found killed. Flies were invariably found dead. Bed-bugs, which were exposed to the direct action of the gas, were likewise killed.

Drs. Harrington and McCollom both found that the gas was fatal to rabbits. The early claims of the innocuousness of the gas to all animal life have not been substantiated.

IN CONCLUSION.

I believe we have in formaldehyde the best practical gaseous surface disinfectant known. For dwelling-house disinfection it is unsurpassed. It is easy of application, and does no injury to goods. It is not ideal, its use being limited to surface disinfection. Its penetrative powers under ordinary conditions are so slight as to be almost valueless. Good results are best obtained by using a large body of gas, and having the room as tightly sealed as possible. Length of exposure and the influence of temperature are secondary to the amount used.

Under these conditions disinfection may be regarded as complete after the use of formaldehyde.

Superficial Area of the Human Body. — At a recent meeting of the Société de Biologie of Paris, MM. Bergonie and Sigalas stated that as a result of recent investigations they had found the superficial area of the human body to be 16,206 square decimetres (17.4 square feet) about one-tenth higher than the figures of Bouchard.

Clinical Department.

A CASE OF TETANUS, TREATED WITH LARGE DOSES OF THE ANTITETANIC SERUM. RECOVERY.

BY S. J. MIXTER, M.D., BOSTON,
Visiting Surgeon to Massachusetts General Hospital; Instructor in Clinical Surgery, Harvard Medical School.

[The good result obtained in this case is largely due to three persons, to whom I wish to extend my heartiest thanks. They are Dr. F. B. Lund, whose article read before the Massachusetts Medical Society is the most thorough and up-to-date *résumé* of the subject, and who kindly saw the boy with us; Prof. Theobald Smith who furnished the serum, and Dr. Seabury Allen, at that time my senior house surgeon, to whose constant care and unfailing interest more than anything else (except the serum) is due the cure. — S. J. Mixter, M.D.]

E. J. C., a boy of eleven years, was brought to the accident-room of the Massachusetts General Hospital, June 22, 1898, with the following history:

Ten days ago while walking in the woods he cut his right foot on a piece of broken bottle. Free bleeding ensued and he went to a physician immediately, who etherized him and dressed the wound. Eight days afterwards he complained of a sharp pain across the shoulders and later in the day of a similar pain in sides of neck, preventing chewing, but not swallowing. Forty-eight hours after this he entered the hospital.

Examination. — Normally developed, lean, anemic; heart and lungs negative; pulse firm and hard; reflexes normal; head retracted; back slightly arched; abdomen, jaw and back muscles set; able to open mouth one-half inch; no glandular enlargement; granulating septic semicircular wound on ball of right foot one and one-half inches long; conscious and rational; speaks clearly. While being examined, patient had two tetanic spasms with risus sardonicus and slight opisthotonos. After each spasm, pulse rose forty beats and respiration twenty.

Patient was put to bed and given 80 c. c of the State Board antitetanic serum under the skin of the thigh without noticeable effect, except considerable pain from distention of the skin. Spasms with opisthotonos of a mild type every twenty minutes.

June 23d. Urine, color normal; acid; specific gravity 1.022; no albumin; no sugar. White blood-count 14,000. Severe convulsions attended with great pain every twenty minutes; muscles not relaxing entirely between attacks. Patient drinks large quantities of liquid nourishment through soft rubber tube; 540 c. c. of serum injected deep into thigh muscles without effect (divided doses). Primary chloroform anesthesia obtained on account of the pain of distention. A few drops of chloroform inhaled at beginning of each spasm to lessen severity. Special nurses.

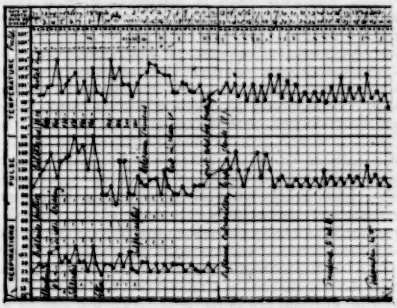
June 24th. Only two severe spasms all morning, 100 c. c. of Gibier's serum infused into median basilic vein without disturbance. In the afternoon an infusion of 250 c. c. (State Board serum) was followed in half an hour by six very severe convulsions with diaphragmatic and pharyngeal spasms, extreme cyanosis and absence of pulse from wrists. By the quick use of chloroform and hypodermics of cocaine and strychnia, the patient came around all right. Temperature arose from 99.9° to 104.2°; pulse rose 40 beats to 140. As the infusion had been given similarly to the previous ones it was thought that the limit of tolerance for the antitoxin had been reached. Complained of headache after the infusion. Pulse weak all the evening. After four severe spasms nearly as bad as

above, between 8.15 and 8.35 o'clock P. M., condition improved greatly, there being nothing but the usual stiffness and muscular twitchings during the night.

June 25th. White blood-count 15,500. At 5 A. M. severe spasms again appeared; 240 c. c. of the regular serum given at 10.30 A. M. and repeated at 11.30 P. M. produced no bad results. Five severe spasms between 9.40 and 11.30 P. M. and eight between 12.20 and 1.20 A. M. (26th) and every three and five minutes between 2.20 and 3.45 A. M.

June 26th. Four hundred and eighty c. c. of the serum this morning followed by slight weakening of pulse and rise of 20 b ats.

June 27th. Schleich's No. 3 anesthetic substituted for chloroform, as latter depressed pulse dangerously. Delirious all day; morphia sulphate one-quarter grain subcutaneously, repeated three times during the day, gave two hours' sleep in all; 480 c. c. serum at 8 P. M. caused in one hour a temperature of 106° and a pulse of 160, but no collapse. It was thought that the serum



had been heated a little too much. Only three severe spasms all night.

Hemorrhagic macular eruption all over shoulders and chest which itches severely. Blood-count, reds 3,300,000.

June 28th. At 4.30 P. M., 480 c c. serum infused, and half an hour afterwards tremendous contractions appeared requiring two persons to hold patient in bed. As before, extreme collapse and cyanosis were overcome by the use of ether and hypodermics. Temperature rose from 99° to 103° and pulse 30 beats to 160. Full anesthesia for half an hour gave complete muscular relaxation. Half an hour later patient was conscious and in good condition. Ether substituted for Schleich's mixture.

June 29th. In good shape this morning. Had several hours of natural sleep, with body resting on heels and shoulders.

Large areas of subcutaneous hemorrhage over limbs and trunk. No infusion to-day, it being thought that limit of tolerance had again been reached; also pulse and temperature were the best for the past five days.

Urine hyperacid; specific gravity 1.026; albumin one-eighth; no sugar; sediment; free renal (?) epithelium. Considerable free blood, and blood on casts.

June 30th. Exhaustion from lack of sleep; 100 c. c. of serum caused rise in temperature from 100.5° to 104° and in pulse of 20 beats to 106. Entire muscular relaxation between spasms for first time. Reflexes absent.

July 1st. Marked hemorrhagic diathesis; bleeding from nose, gums, scratch marks, infusion-incisions, etc. One hundred c. c. of the serum caused rise in temperature of 2° and of 40 beats in pulse. Blood-count, reds 3,500,000.

July 2d. Only one severe spasm last night. This morning spasms of a mild character came every hour. No ether since last night, the patient cries for it and feigns contractions. One hundred c. c. of serum has no effect.

July 3d. Only five genuine spasms to-day. Aromatic spirits ammonia on cone partially satisfied craving for ether. One hundred c. c. given with local (cocaine) anesthesia. Patient watched whole process and said he felt no change at all.

July 4th. No sleep all night, though there were no convulsions. All muscles relaxed except those of the jaw. Patient in howling delirium, trying to get out of bed, sees things in his room which do not exist. Temperature 103°, pulse 110. Is evidently in delirium tremens from ether. Inhales violently through mosquito netting or towel, or whatever is held over nose resembling an ether cone. Quieted by morphia sulphate, one-fourth grain, repeated twice.

July 5th. Violent and sleepless all night, except for an occasional half-hour's quiet following a whiff of Schleich's anesthetic. One slight tetanic spasm last night.

July 6th. White, blood-count 6,100. Delirium tremens much less violent to-day.

July 7th. Quiet and sleeping all last night. Special nurses omitted. Out on veranda.

July 13th. Inflammation of lower submaxillary lymph glands from ulcers on tongue where latter has been bitten.

July 18th. Jaws entirely relaxed and mouth opens normally for first time.

July 30th. Tuberculin injections gave no reaction.

July 31st. Patient is slowly recuperating and it is expected that he will be able to go home in about a week.

Conclusions. — The following points suggest themselves: The case was in no sense one of chronic tetanus; all others occurring at the Massachusetts Hospital that have approached this in severity have died. As the treatment varied from that of other cases only in the large doses of antitoxin given, it seems probable that this was responsible for the recovery.

Since the experiments on animals show that the antitoxic serum has little or no power over the disease when it has become well established, it is important to begin the dosing at the earliest possible moment. When injected, the serum should be heated to about 1° F. above the rectal temperature; if more than this, the body temperature will rise; if less the heart will be slowed and collapse may occur.

The best way to administer the serum is by intravenous infusion. Hypodermic injection is slow and painful, and it is not absorbed if given by the mouth or rectum.

The physiologists urge as an objection to the trans-

fusion of a large amount of animal serum, the danger of thrombosis and embolism, although in this case these accidents did not occur. There did seem, however, to be some danger from overloading the heart, from the variation in temperature between that of the body and that of the serum, and also from the anemia and hemorrhagic tendency consequent to the injection of so large a quantity. (In all this patient was given 3,400 c. c., averaging about 285 c. c. daily.) It is evident that a more highly concentrated serum would obviate these difficulties. The dosage of serum in this case had to be regulated on the supposition that the strength was one unit to the cubic centimetre, which was the actual strength at the time it was last estimated by Dr. Smith.

Paraldehyde, twenty minims every hour and bromide of sodium twenty grains every two hours, were valueless. Morphine sulphate, one-fourth grain hypodermically every three hours, caused no diminution in the number or severity of the spasms, but did give rest and sleep between them.

Chloroform and Schleich's anasthetic were too depressing for a heart already overtaxed. Ether alone was safe.

This case is probably the first one in this country, at least it is the first one thus far reported, in which an attempt was made to give 500 units, the amount advised by Behring at one dose, and to inject it directly into the blood stream. The success of this case certainly points to the possibility that in the cases reported heretofore the dosage has not been sufficient, and demonstrates the practicability of the intravenous infusion of 500 c. c. of animal serum in cases where it is necessary.

Although the preparation of a stronger serum is much to be desired, it is evident that success can be attained with the present preparation if used in sufficiently large amount.

Medical Progress.

REPORT ON PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., BOSTON.

THE PATHOLOGICAL ANATOMY AND ETIOLOGY OF ENDOCARDITIS.[1]

HARBITZ publishes the results of three years' pathological and experimental study of endocarditis. He has found that the infectious form is a much commoner affection than is usually thought. Most cases are caused by the ordinary pyogenic bacteria (staphylococci, streptococci and pneumococci), but the course and pathological picture vary with the character of the organism. In one group of cases, where the infecting agent is the staphylococcus, one finds the classical symptoms of pyemia with a rapidly fatal course, while anatomically there are multiple pus foci and often a local focus of pus. In another group, due to the streptococcus and the pneumococcus, the course is more chronic and there is a certain tendency to recovery. Here the point of original infection is rarely found, the infarctions are not infectious and there are no purulent foci. A toxico-infectious influence, is, however, shown in other organs, for example, in the occurrence of nephritis. Endocarditis due to the gonococcus undoubtedly occurs, but it is still questionable if the tubercle bacillus can cause it. Although in certain cases of chronic endocarditis bacteria cannot be found the rest of the picture is so similar to infectious endocarditis that there is little doubt but that they were the cause. The process usually starts as an endothelial necrosis, but it may arise from bacterial emboli in the vessels of the valves.

Although no specific organisms have been found in acute rheumatism a number of these cases must be regarded as due to infection with weakened pyogenic organisms, and the accompanying endocarditis may well be of a toxico-infectious nature. Many of the slight excrescences found in other chronic diseases are also readily explained as the product of a toxic influence leading to a superficial necrosis.

[1] Centrblt. f. in. Med., 1898, No. 24.

AN EXPERIMENTAL INVESTIGATION OF THE CAUSE OF FAILURE OF COMPENSATION IN VALVULAR DISEASE.[2]

Since all theories as to the reason why a hypertrophic heart, the result of valvular disease or other cause, becomes insufficient, are of a purely speculative nature, Balint has endeavored to get at some positive facts from experiments on dogs, rabbits and cats. The aortic valves were destroyed by Rosenbach's method and the animals kept under observation for a long time. In each case after death marked hypertrophy of the heart-muscles was found but no trace of any failure of compensation although often several months had elapsed. In a later series of experiments, in addition to the destruction of the aortic valves, measures were taken to injure the cardiac muscle or the nervous mechanism. Intravenous injections of staphylococci produced too speedy death from ulcerative endocarditis, and the continuous subcutaneous injection of phosphorus, while it produced a high degree of fatty degeneration, did not lead to the slightest lack of compensation, and showed that the latter is certainly not due to an affection of the heart-muscle. When, however, the vagus was divided a different result was obtained. If both vagi were cut death followed very rapidly, much sooner than in otherwise healthy animals, but when one was left intact it was possible to produce cardiac insufficiency in dogs and cats but not in rabbits. Balint therefore considers it probable that in man a disturbance of the nervous mechanism of the heart leads to failure of compensation in valvular disease.

HYPERTROPHY OF THE HEART IN ARTERIO-SCLEROSIS.[3]

Hasenfeld says that the diversity of opinion regarding the frequency of cardiac hypertrophy in arterio-sclerosis can be explained on the supposition that the former is not a necessary result of the latter, although theoretically from the increased work thrown on the heart it might be expected. He asks whether these varying effects may not be due to the special distribution of the sclerotic changes in the vessels in various portions of the body, as it appears to be proved that sclerosis of the splanchnics exercises a much greater influence on the circulation than that of other arteries, while probably marked sclerosis of the aorta has a similar effect. In order to arrive at a solution of this question he has made a careful study of the arteries in

[2] Deut. med. Woch., 1898, Nos. 1 and 2.
[3] Deut. Arch. f. klin. Med., Bd. 59, s. 183.

various portions of the body, and has weighed the heart in a number of cases. He arrives at the following conclusions:

Physiologically a slight connective-tissue growth is found in the intima of splenic, superior mesenteric and hepatic arteries.

Arterio-sclerosis is quite common, though only to a degree recognized by the microscope, in the splanchnic vessels. Marked changes, on the contrary, are found there much less often than in the aorta or in the arteries of the brain.

Sclerosis is usually most pronounced in the main trunks of the splanchnics and diminishes in the branches.

Arterio-sclerosis leads to hypertrophy of the left ventricle only when the splanchnics or the aorta above the diaphragm are markedly affected. Sclerosis of other vessels does not appear to alter the conditions.

In the cases under investigation, owing to the freedom of the terminal branches of the splanchnic system from degenerative changes and the varying degree of their development in the main trunks, hypertrophy of the left ventricle was very slight.

In the cases of contracted kidney examined all portions of the heart were invariably hypertrophied, but if, at the same time, the splanchnic vessels were greatly altered, hypertrophy of the left ventricle predominated. Marked changes in the aorta would probably act in the same way. Were the splanchnic arteries normal or only slightly affected, all portions of the heart were equally affected.

If further investigations as to the weight of the heart by Müller's method, which Hasenfeld considers the only accurate one, show the same general cardiac hypertrophy in connection with a contracted kidney it must be concluded that the cause of such enlargement increases the work of both sides of the heart and probably also spurs it to increased activity.

PNEUMOTHORAX CAUSED BY DIRECT VIOLENCE WITHOUT FRACTURE OF THE RIBS.

Walter Kidd[4] reports a case of a perfectly healthy man, twenty-one years old, who fell backwards with his spine flexed, from the footboard of an omnibus to the road, apparently falling on the left side of his back as no other bruises or injuries were found.

He felt a sharp pain in the left hypochondriac region and left lower ribs, but was able to proceed a considerable distance to a volunteer drill, in which he started to take part, but after a few minutes, feeling too ill to continue, he returned home; that night he suffered great pain in the region mentioned and his breathing was difficult. When seen the next day there was no external sign of injury, no fracture of ribs and no hemoptysis. His skin was cold and clammy, his pulse rapid and running, and the respiration hurried and painful, the pain being chiefly referred to the region of the spleen. Signs of left pneumothorax were present, while three days later some fluid had collected at the base of the chest. A month later there was still deficient expansion of the lung and some pleural fluid with pyrexia, the temperature ranging from 101° to 102°. These symptoms gradually subsided, and three and one-half months after the accident the patient was perfectly well and there were no signs discoverable in the chest.

[4] Lancet, November 13, 1897.

A CASE OF RECURRENT IDIOPATHIC PNEUMOTHORAX.[5]

Finny reports the case of a stableman, eighteen years of age, of good family antecedents, and with no history of previous illness or delicacy, strain or violence, who complained on getting up in the morning of a feeling of great weight across the top of his chest, and when going to work was suddenly taken with violent pain and dyspnea. On the following day the pain had almost disappeared, only a slight catch in the upper part of the left axilla remaining when he coughed. Three days later on admission to the hospital there was no apparent evidence of any sickness in aspect, manner or decubitus. The respirations were easy, 28, pulse 96–100, temperature 98°. Physical examination showed that the left pleural sac was filled with air, the heart and mediastinal contents being displaced to the right of the sternum and the stomach downwards, well below the costal arch. Signs of effusion were never obtained. Recovery was uneventful except for the development of a double friction sound synchronous with the heart, which was considered by the reporter as of exocardial origin, and the patient was discharged six weeks later apparently well. Two weeks later while engaged in heavy lifting work with a manure fork he felt a little "crackle" in the top of the left chest, but he suffered little inconvenience till he got out of bed the next morning, when the old symptoms returned. Five days later he was again admitted to the hospital with marked signs of pneumothorax. When last seen he was making rapid progress toward recovery.

CRITICAL SWEATING IN PNEUMONIA IN RELATION TO DIURESIS.[6]

In view of the marked disturbance of the organs of circulation, and not the least the heart, which accompanies profuse sweating Rensner-Leinsal has endeavored to diminish or to prevent the sweating which occurs during the crisis in croupous pneumonia by lessening the amount of fluid in the body through increased diuresis, since the danger of death during or shortly after the crisis from cardiac paralysis might thus be in a measure avoided. He has used for this purpose only the sodio-salicylate of caffein with camphor or digitalis, and has only used them in severe cases, four of which are reported. Sweating was not prevented in every case, but in many it was reduced to an inappreciable amount as a result of the increased elimination of urine.

THE BACTERIOLOGY AND PATHOGENESIS OF SERO-FIBRINOUS PLEURISY.[7]

Le Damany brings up again the subject of the etiology of acute pleurisy and gives the result of his investigation of eighty-two cases. His conclusions, which are sufficiently radical, may be summarized as follows:

There is but one idiopathic sero-fibrinous pleurisy, to wit, the tubercular. That alone is due to the penetration of microbes into the pleura, and is the only form in which the effusion contains at all constantly the pathogenic agent, and is, therefore, the only one which is normally not sterile.

The presence of other pathogenic microbes in an effusion is accidental; they play no part so long as the effusion does not become purulent, and their discovery

[5] Dublin Journal of Medical Science, April, 1898.
[6] St. Petersb. med. Woch., 1898, No. 2.
[7] Presse Med., vol. v, p. 329.

gives no clue to the character of the pleural inflammation.

Other pleurisies, always secondary, are pleural fluxions, whose existence is intimately connected with that of the subjacent pulmonary lesion (infarction, congestion, hepatization). They are never due to the invasion of the pleura by a microbe, for the effusion is always sterile, even when sero-purulent. Whether the pulmonary lesion is aseptic or infectious, the presence of bacteria in the pleural fluid is still accidental and exceptional.

Pathogenic bacteria, like the pneumococci, streptococci, Eberth's bacilli, bacteria coli, staphylococci, tetrageni, etc., acting directly on the pleura, can only produce empyema.

THE INFLUENCE OF THE FORM OF BACTERIAL INFECTION ON THE COURSE OF PNEUMONIA.

Weismayr [8] has made a series of observations similar to those of Dürck and others, but has devoted especial attention to the course of the disease. In thirty-nine cases of pneumonia he found that thirty-four were due to the diplococcus alone, two to a mixed infection by streptococci and diplococci, and three to a pure streptococcus infection.

In certain particulars the course of the disease seemed dependent on the form of infection, for while in those cases which were caused by the diplococcus resolution began in the majority of cases on the sixth or seventh day and never later than the eleventh, and was completed in a very short time, those in which the sputum contained streptococci, whether alone or mixed with diplococci, showed a distinctly delayed resolution, which could not be accounted for by the age of the patient, by the presence of complications, or, as Leyden considers the case in many instances, by a peculiar consistency of the exudate. The only characteristic common to all his cases was the presence of streptococci in the sputum. He therefore says that where streptococci are found in the sputum of patients who are ill with an inflammation of the lung, which is recognized clinically as lobar or croupous pneumonia, the prognosis as regards the duration of the disease should take into consideration the fact that delayed resolution is to be expected, while the general outlook is certainly less good, since the danger of a secondary infection, for example, by tubercle bacilli, or the possibility of abscess formation, is greater than in a pneumonia running a typical course.

No conclusions as to the condition of the affected lung can be drawn from the behavior of the fever. In most cases of streptococcus infection it is very irregular, remittent or intermittent, and may temporarily or permanently disappear without an alteration in the exudate. He has never observed chills. As regards the form of the pneumonia all his cases were of the lobar variety, although the signs did not always develop in their full intensity, and he does not consider it impossible that the original infection, often in cases where streptococci alone were found, was due to the pneumococcus, which had later given place to the streptococcus. Whether the latter alone is capable of producing a croupous lobar pneumonia or not, it is certainly true that their presence in the sputum of a typical croupous case, whatever the age or general condition of the patient, the course of the fever or the local phenomena, leads to a very much protracted resolution.

[8] Zeitsch. f. klin. Med., 1897, Bd. 32.

THE SPREAD OF PHTHISIS.[9]

Flügge denies that there is any evidence to show that a healthy individual gets phthisis from inhaling dust containing dried sputum, and says that nearly all experiments to induce tuberculosis in animals by causing them to inhale such dust have failed. Success has only occurred when there was some lesion of the respiratory tract. Furthermore it has been shown in the author's laboratory that the tubercle bacilli cannot be carried along in the finest dust as readily as other microbes. Tuberculosis can, however, be readily produced in animals, if they are forced to inhale finely divided drops of fluid sputum. The danger of infection lies therefore very largely in the patient's cough, the amount of contamination of the surrounding air depending on the frequency and character of the cough and the abundance of the sputum and the secretion of the mouth. He does not, however, think that this danger is as great as it appears to be, and can be probably avoided by attention to a few simple details. If the author's conclusions are correct the contagion must be much more fleeting than if it resulted from the dried sputum.

MIXED INFECTION IN TUBERCULOSIS OF THE LUNGS.[10]

Schabad, from a bacteriological examination of 31 cases of pulmonary tuberculosis, arrives at the following conclusions:

(1) Those cases only are to be considered instances of mixed infection in which the secondary organisms are found in the lung tissue or in the blood.

(2) The presence of pathogenic organisms in the sputum, even in pure or almost pure culture after Kitasato's method, is not enough to prove a mixed infection, since experience has shown that all micro-organisms grown in that way do not come from the lungs, the only exception being the true pus streptococcus.

(3) It is very important not to confound the real pus streptococcus with the so-called streptococcus of mucous membranes, which morphologically resembles it, but differs in its biological peculiarities and absence of pathogenic properties. While the latter play the rôle of harmless parasites, the former has a decided prognostic significance, since it enables one to diagnosticate a streptococcus mixed infection, altogether the commonest form in tuberculosis of the lungs.

(4) Less often a secondary infection occurs with the micrococcus tetragenus and pneumococcus, or a double infection with the streptococcus and staphylococcus or the streptococcus and pneumococcus.

(5) Secondary infections complicate chiefly the last stages of pulmonary tuberculosis and soon lead to death. It is so common that almost every case of the disease which comes to autopsy shows evidence of it.

(6) The significance of the secondary infection lies in the fact that it co-operates with the tubercle bacillus in the pneumonic process, or at least exerts a harmful influence through the toxins of its bacteria on the general condition of the patient, on the fever, and in the destruction of the lung. It can also occasion a septicæmia, which then appears as the last act of a mixed infection.

[9] Deut. med. Woch., October 14, 1897.
[10] Zeitschft. f. klin. Med., Bd. 33, S. 476.

(7) Undoubted cases of pulmonary tuberculosis occur which run their course with all the manifestations of the hectic process and end fatally without the participation of any other organism than the tubercle bacillus.

(8) Hectic fever of the severest type is characteristic of uncomplicated cases of tuberculosis of the lungs. In cases of mixed infection with streptococci the typical streptococcic curve is seldom observed; in most cases the temperature is remittent or approaches the constant type.

(9) A normal temperature characterizes stationary uncomplicated pulmonary tuberculosis. A mixed infection with a normal temperature (a passive mixed infection in Spengler's sense) is hardly probable.

Reports of Societies.

TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

HELD IN PRINCETON, N. J., MAY 31 AND JUNE 1, AND IN NEW YORK CITY, JUNE 2, 1898.

(Concluded from No. 13, p. 323.)

Lupus Erythematosus in a Tuberculous Patient, with Autopsy Report and Notes on Other Cases.

DR. J. A. FORDYCE presented this report in connection with the present discussion. The first case occurred in a subject in whom the anatomical diagnosis, at autopsy, was pulmonary and cerebral edema, renal tuberculosis and hepatic cirrhosis. A section from the affected area of the skin showed no polynuclear cells, and no tubercular inflammation of the skin, the principal microscopical changes being vascular. The eruption in this case corresponded more closely with the telangiectatic type. In another case reported by him he was of the opinion that the lupus erythematosus was due to a local thrombosis of capillary vessels previously diseased, and that the peripheral extension might be explained by the spreading of this process in the capillaries. In other cases the passage of toxins through the vessels may develop a local thrombosis.

DR. GILCHRIST said that his studies concerning the histology of lupus erythematosus served, for the most part, to confirm the statements made by Dr. Robinson. It seemed to him to be a disease which is histologically distinct from tuberculosis of the skin. He had not found any thrombosis in his cases.

DR. M. B. HUTCHINS, of Atlanta, said that in a limited experience with the disease, he had found the best results to follow the use of a 20-per-cent. pyrogallic-acid plaster — a method that had found favor in the New York Skin and Cancer Hospital.

DR. G. T. ELLIOTT said that he had tried every form of treatment, and had not seen two cases in succession react in the same way. He could only vouch for one cure, and that followed the application of the actual cautery to a small area.

DR. C. W. ALLEN spoke of the good results that he had obtained from the electrolytic needle, and from the application of pyrozone, but admitted the proneness to relapse even after a considerable interval.

DR. POLITZER said, regarding the statement that the disease is claimed to originate in the sebaceous glands, that he thought the fact that the disease begins in the mucous membrane, and on the palms of the hand, where there are no sebaceous glands, should be sufficient to refute such a claim. In connection with the subject of treatment, a case was quoted to show the good effect sometimes observed from Schurz's method of painting the patches with a very weak solution of arsenic.

DR. MONTGOMERY remarked that although he had succeeded in obtaining the desired reaction from the Schurz treatment, he had never observed any reduction in the size of the patches.

DR. SHERWELL said that his favorite treatment for this disease is the acid nitrate of mercury externally, and arsenic internally. He had had a number of cures, including one which had had no relapse for eighteen years.

DR. ZEISLER said that he had long been impressed with the parasitic nature of lupus erythematosus, and while he had refused to accept the view that there is any connection between it and tuberculosis, some cases certainly suggested such a relationship. There was more hope of accomplishing something by treatment in those cases presenting a turgescence of the skin. His favorite treatment consisted in the application locally, about once a week, of a mixture of equal parts of iodine, carbolic acid and chloral, with soothing applications in the interval. Lotions were usually better borne than ointments.

DR. WINFIELD favored the employment of mild measures. In only one case had he succeeded in curing the disease even for the space of a year, and in that one he had used pure carbolic acid.

DR. JACKSON advocated the local application of a 50-per-cent. solution of resorcin.

DR. FOX was inclined to believe that with a red-hot poker the worst case of erythematosus lupus could be cured, but the scarring would be objectionable. He did not think one was warranted in saying that the disease is incurable, although admitting that the disease often recurs, even after a number of years. It was most important to use such local measures as would diminish the congestion.

DR. BRONSON said that as the disease, in its clinical aspect, was essentially an erythema, the object of treatment should be to diminish the hyperemia. The best remedy for this purpose is resorcin, which he preferred to apply in the form of varnish made with tragacanth and gelatin.

DR. DUHRING said that he had largely given up very active treatment in this disease, for he was convinced that he had made many cases worse by using the stronger remedies. Caustics, curetting and the local use of arsenic he considered harmful. He was of the opinion that the future treatment would be largely by internal medication.

DR. HARDAWAY said that he reserved the destructive treatment for the fixed form of the disease.

DR. HYDE said that he had observed some remarkably good results from the use of pyoctanin blue after disinfecting the surface with formalin solution.

A REPORT OF THREE CASES OF URTICARIA PIGMENTOSA.

DR. H. W. STELWAGON presented this report, and exhibited one of the patients. Two out of three subjects were females. The early lesions were, for the

most part, wholly urticarial. The eruption was most abundant on the neck and trunk.

Dr. Gilchrist said that he had examined sections from one case of urticaria pigmentosa, and had found, as Unna had asserted, that the lesions consist largely of mast cells.

IMPRESSIONS AND CONCLUSIONS FROM A STUDY OF FIVE THOUSAND CASES TREATED DURING THE YEAR.

Dr. C. W. Allen read this paper. Speaking of favus, he said that he had found the best treatment to be cutting the hair short, and applying such remedies as chrysarobin. In the treatment of facial erysipelas he had derived much satisfaction from applications to the nose of a 50-per-cent solution of ichthyol in water, and painting the face with a 25-per-cent solution of ichthyol in collodion. He had noted the occurrence of erythema nodosum so commonly in those who had just completed a sea voyage that he was inclined to believe there was a definite connection between the two. The temperature in these patients often rose as high as 104.5°F. A most satisfactory treatment for ringworm consisted in the application of formalin by the physician himself. It is a strong and painful application, but acts promptly and with great efficiency.

Dr. Johnston said that he had seen a most violent dermatitis produced by the use of a half-per-cent solution of formalin.

Dr. Gilchrist also thought formalin a dangerous application.

Dr. Hutchins, on the other hand, said that he had used it in half per cent. and also in full strength, without observing any dermatitis. Recovery had been unusually rapid.

A PAPULAR PERSISTENT KERATODERMIA. REPORT OF AN UNDESCRIBED DISEASE.

Dr. J. C. Johnston, in this report described a pruriginous, papulo-vesicular eruption, occurring in an adult, the papules being discrete, hard and not grouped. It appeared first on the face, and subsequently on the arms and legs. The microscope showed an enormous secondary thickening along the nerve trunks. It should be classed among the neurotic inflammations, between the neuromata and the neuro-fibromata.

A CASE OF LICHEN SCROFULOSUM OCCURRING IN A COLORED CHILD.

Dr. T. C. Gilchrist reported this case. Internal treatment with the hypophosphites caused a complete disappearance of the lesions, after they had existed about two weeks.

Dr. White remarked that the characteristic of this disease was the presence of a patch of papules, presenting a well-defined margin, and diminishing first in the centre.

A CASE OF UNIVERSAL LICHEN PLANUS WITH A FATAL TERMINATION.

Dr. J. A. Fordyce reported this case, which illustrated the fact that many cutaneous diseases are associated with severe lesions of the internal organs.

Dr. Johnston remarked that from the report of the autopsy he inferred that the condition of the adrenals had much to do with the extreme degree of pigmentation exhibited in this case.

Dr. Gilchrist said that recent investigators had succeeded in extracting from the adrenal gland an exceedingly toxic substance.

Dr. Hyde said that in this disease the degree of pigmentation was not always in proportion to the number of the lesions.

Dr. Fordyce said that he had never before seen a case of lichen planus with such an extensive distribution of the lesions and such marked pigmentation. As this patient had a marked cardiac lesion, it was a question whether the lichen planus was directly concerned in causing the death of the patient.

BATH PRURITUS.

Dr. H. W. Stelwagon, in a paper with this title, described that itching or burning from which some persons suffer immediately after a bath. It varies from a slight pricking to an almost intolerable itching. It is commonly felt in the lower limbs, and lasts from ten minutes to half an hour, becoming more and more intense for a time, and then gradually subsiding. It lasts longer if the individual goes from the bath to bed. It is not more frequent in cold than in warm weather, and is observed even after open-air bathing, both in fresh and salt water. Prolonged bathing, and very hot or very cold water aggravate the condition. Persons having an irritable, dry skin are most susceptible, and the condition is naturally aggravated by imperfect digestion, worry and a generally nervous temperament. The treatment is unsatisfactory. Only a mild soap should be used, and that sparingly. Gentle rubbing with glycerine lotion in small quantity is useful, as is also the free use of dusting powders.

Dr. White said that these cases were not easily influenced by treatment, but he had benefited one case by having the patient spray the body with alcohol immediately on coming out of the bath.

Dr. Hardaway said that he had observed one such case, in the person of a healthy physician, pretty constantly for ten years. Cold water produces agonizing itching in this man. A weak solution of menthol in alcohol, and the common calamine and zinc lotion had given this patient a good deal of comfort.

Dr. Hutchins thought these cases were similar to pruritus himalis, being the result of temperature changes occurring during the bath, as from evaporation.

Dr. Stelwagon replied that his cases did not seem to have any direct connection with temperature variations. The first case that he had observed had been in his own immediate family.

The third day of the meeting was devoted to a clinical session, and exhibition of photographs and colored plates of rare and interesting cases. This session was held in the New York Academy of Medicine, and the number, variety and rarity of clinical cases exhibited aroused much favorable comment.

Officers elected: *President*, Dr. J. A. Fordyce, of New York; *Vice-President*, Dr. J. T. Bowen, of Boston; *Secretary and Treasurer*, Dr. George T. Jackson, of New York.

Yellow Fever in the South. — Yellow fever is present to a moderate extent through southern Mississippi and Louisiana, and on September 26th, twenty-six cases of a mild type were discovered at Wilson, La. In general the type of the disease is mild, and its spread is being kept under control by the officers of the Marine-Hospital Service.

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THE WHEAT SUPPLY OF THE WORLD; THE WASTE OF NITRATES; THE FIXATION OF NITROGEN.

At the meeting of the British Association for the Advancement of Science held lately in Bristol, Eng., Sir William Crookes, among other subjects, spoke of the "Wheat Supply of the World," in an address which has attracted much attention.

It is important to be able to forecast the future in respect to the wheat supply, for nations of the highest civilization are wheat eaters, and, as Sir William Crookes says, none of the other cereals have the food value, the concentrated health-sustaining power of wheat. It is on this account that the accumulated experience of civilized mankind has set wheat apart as the fit and proper food for the development of muscle and brains. A failure then on the part of the wheat-exporting countries to keep pace with the demand would be a dire calamity.

Sir William Crookes takes a survey of the wheat-producing regions and gives estimates from published statistics of the quantities of wheat produced during the last three decades by Canada, Australia, Russia, the United States, etc., and comes to the pessimistic conclusion that the limits of production are nearly reached for all these countries and even for the United States. Practically there remains no uncultivated prairie land in the United States suitable for wheat growing, — vast regions, once great wheat fields, have ceased to grow wheat, the soil for that cereal being exhausted. The virgin land has been rapidly absorbed until at present there is no land left for wheat without reducing the area for maize, hay and other necessary crops. It is, he says, almost certain, that within a generation the ever-increasing population of the United States will consume all the wheat grown within its borders, and will be driven to import, and like Great Britain will scramble for a lion's share of the wheat crop of the world. As for Russia, he declares that the prospect is far worse; the peasants are starving while the wheat growers export grain which should be consumed at home; as for Siberia, the most of this country is too far north for the cultivation of wheat and there are but a few very limited districts in the western part, where wheat can be grown to advantage. The wheat-bearing area of all Canada has increased less than 500,000 acres since 1884, while the exports have not increased in greater proportion, the added acres in the northwest and Manitoba being only about sufficient to meet the growing requirements of the population. Not much more can be expected from Australasia and Argentine and Uruguay, — the prospective supply of wheat from these countries having been greatly over-rated. In India, seven-eighths of the harvest is required for native consumption and only one-eighth is available for export. The acreage devoted to wheat has been steadily declining and will probably continue to decline. But little more can be looked for from Austro-Hungary, whose wheat area for the future is not likely to exceed home requirements. There are reasons why great expectations for the future cannot be entertained of Africa.

Sir William Crookes's prospective is sufficiently gloomy. Before the year 1930 this country will have an increased population which will need all the wheat that it produces and the annual production of wheat will become less and less, while population will augment in a geometrical ratio; other nations will experience a wheat famine of a most deplorable kind. The results will be manifest in the deteriorated constitutions of the great Caucasian race whose progress has everywhere gone along *pari passu* with wheat cultivation.

It is worthy of note that Sir William Crookes's statement of facts and statistical probabilities have been disputed by the commercial experts. The *Evening Post* sharply criticises his prognostications. The view given above of the productive limitation of Canada and Roumania is rejected, and much stress is laid on Russia's possibilities under scientific farming. Dornbusch's London organ of the grain trade contests the theory that Australian production has reached its maximum and affirms that fifty million acres of suitable soil are to-day cultivated in Queensland alone. Our own Department of Agriculture estimates a ten-per-cent. increase this year in the acreage of the United States with at least 150,000,000 bushels increase in the output. Finally, the very obvious point is made that estimates of the world's population and of its ratio of increase are largely matters of guesswork, especially when the attempt is made to discriminate between bread eaters and non-bread eaters.[1]

On another point of Sir William's address, even more importance may be placed. The world's stock of fixed nitrogen is slowly being exhausted, and this exhaustion when accomplished would surely entail destruction of the wheat crop, for wheat pre-eminently

[1] New York Evening Post, September 27, 1898.

demands nitrogen, fixed in the form of ammonia or nitric acid. In its free state, nitrogen is one of the most abundant and pervading bodies on the face of the earth. Every square yard of the earth's surface has nitrogen gas pressing down on it to the extent of seven tons, but this is in the free state, and wheat demands it fixed. In the free state nitrogen is worth nothing, combined in the form of nitrate of soda a ton's weight is worth about $34.00. We now get our available nitrogen: (1) as ammonia and sulphate of soda, in the by-products of gas making (the quantity obtained from this source is very small); (2) from guano (guano deposits are unfortunately now nearly exhausted); (3) from cultivation of clover and the leguminosæ which assimilate nitrogen by the help of certain bacteria of the soil — the supply from this source is attended with uncertainty and difficulties; (4) from manure, and from the sewage and drainage of towns. Sir William Crookes comments on the unspeakable waste of fertilizers constantly going on in cities which pour their sewage into water courses and into the sea, and declares with Liebig that "nothing will more certainly consummate the ruin of a country than a scarcity of fertilizers,— it means a scarcity of food."

The fixation of nitrogen Sir William Crookes declares to be the problem of the future awaiting the ingenuity of chemists, being vital to the progress of civilized humanity. He formerly made some experiments in which he showed that nitric acid can be generated from air by passing a strong induction current between terminals, when the air takes fire and burns with a powerful flame, producing both nitrous and nitric acids, whose after combination with soda is a simple affair. It is then demonstrated that nitrate of soda can be produced artificially by the combustion of the atmosphere. But how about electricity? he asks. Can we generate enough energy to produce 12,000,000 tons of nitrate of soda annually — the amount required? A preliminary calculation shows that there need be no anxiety on this score. Niagara alone is capable of supplying the required electrical energy without much lessening its mighty flow. The artificial production of nitrate of soda is clearly within view, and by its aid the land devoted to wheat can be brought up to the thirty bushels per acre standard!

These considerations are of the highest practical utility, as showing the relation which chemistry sustains to the solution of the food-problems of the future. There will be bread for all.

REST IN BED IN THE TREATMENT OF INSANITY.

Bernstein [1] states that the characteristic advance in practical psychiatry in the nineteenth century is the evolution of the idea that the insane person is a sick person, and the systematic introduction of this idea with all its consequences into practical life. The treatment by rest in bed has recently been much discussed. Its practicability has led to the establishment in an asylum of two or three wards as an observation quarter, to which all new admissions are sent, where they must remain in bed. The chronic cases in physical good health, capable of work and not demanding especial care are sent in a few days to other wards; the acute, weak cases and the dangerous cases are kept in bed in these wards, together with relapsed cases, those temporarily agitated and general paralytics in the marasmic state. Agitated, furious and untidy cases and the cases of suicidal melancholia are also fitted for these wards. The idea of the bed treatment is, of course, not wholly new since many of these cases have always required such treatment, but this special régime of rest in bed is based to some extent on the theory of giving to insane patients a remedy employed largely in the treatment of physical diseases. The chief objection raised has been to the possibility of its application, based upon the idea that the insane will be unwilling to submit to remain in bed, especially the violent and destructive patients who may demand restraint. Practically, however, the violence is found to be considerably moderated by such treatment and the habit of remaining in bed is quickly acquired. The newly-admitted patient is undressed, put to bed, surrounded by other patients submitted to the same régime. This atmosphere has the effect of convincing him of his own sickness and of that of his neighbors and the necessity of rest and tranquility for him. This state of things acts as a discipline. It is true that sometimes restraint in bed is necessary, either by aid of the attendants, baths, packs, drugs, etc. Bernstein has applied this in his wards for women at Moscow with good results. Where the patients are in separate rooms the method becomes very difficult and demands a large force of attendants. It must be employed, therefore, in large wards. At the outset the practice was much more difficult than later, when the newcomers arrived in an established order of things and found themselves surrounded by patients accustomed to remain in bed. The attendants were sometimes obliged to restrain patients in bed for a day or two, but even the most excited quickly yielded and warm baths, restraint and narcotics were very rarely needed. During a period of eight months 32 patients were cared for in his ward, of whom 24 were acute cases, 19 of whom remained in bed during 1,696 days. During the year the isolation rooms were not used; the ward ordinarily occupied by excited cases was surprisingly orderly and calm. A larger nursing force was not required and frequent visits were made by the physicians. The violence and excitement of the patients rapidly diminished. The familiar scenes often observed when patients were isolated in separate rooms were never seen. The patients seemed to keep their human qualities; they were much less filthy. Motor excitement was reduced to a minimum; the excitement of the mind was diminished, the delirium was slight. The patients did not seem to be cured

[1] Annales Medico-psycholog., v. 55, 1897.

more promptly, but the system certainly possesses the merit of making it possible to renounce the isolation of the insane in cells, it facilitates their care and ameliorates the supervision. It is economical because it diminishes the filthiness and the destruction of furniture. It simplifies the type of asylums and renders superfluous the padded cells.

MEDICAL NOTES.

Troop-Ships for the Army. — We are glad to learn that the War Department is about to fit up troop-ships which shall be properly equipped and arranged for the transportation of our soldiers. There will probably be plenty of occasion for their use for many months to come, even if no further wars require our attention.

The Heated Term in Paris. — The following account of the disastrous effects of this summer's heat and drought in Paris is given by the Paris correspondent of the *Lancet*, who writes under date of September 20th. The excessive heat prevailing in Paris for the last two weeks has had a markedly injurious effect upon the public health. In addition to the numerous cases of sunstroke, gastro-intestinal affections have run up to an unprecedented number owing to the water-supply being temporarily enhanced by water taken from the Seine, the ordinary sources of supply being insufficient to meet the demand. Some cases of gastro-enteritis have been of a very severe type, death occurring in about three days; others have been milder and very few Parisians have escaped an attack of this mild form. Every effort is being made to increase the supply of drinkable water for the town and it is hoped that by next year water from Lunain will be available. Last week an artesian well was bored at the Butte aux Cailles. This well, the boring of which was originally commenced in 1864, gives a minimum supply of 6,000,000 litres *per diem* at a temperature of 27° C. The water, which is very pure and appears to come from the shell beds of the Jura, will be used in part for a thermal bathing *établissement* and in part, after having been cooled down to 12° C., for drinking purposes.

With the disastrous drought produced in East London this summer by the heat, our readers are undoubtedly familiar. On this side of the water, although marked suffering has resulted from the heat, we have been spared the drought and in fact have cause to complain rather of too much than too little rainfall.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, October 5, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 45, scarlatina 24, measles 7, typhoid fever 26.

Bequests to Hospitals. — The will of the late Samuel B. Symonds, of Beverly, recently proved in the Essex County Court, bequeathes $1,000 to the Beverly Hospital. By the will of the late Elizabeth C. Ware $25,000 is bequeathed to the Boston Lying-in Hospital, $20,000 to the Children's Hospital, $10,000 to the Massachusetts General Hospital.

Death of a Centenarian. — Mrs. Betsey Barker, of North Grafton, died October 3d at the age of one hundred years and four months, of pneumonia.

Sailing of the "Bay State." — The *Bay State* sailed again for Utuado, Porto Rico, with several nurses who are to be left for service in the Military Hospitals there. She will return with another complement of soldiers.

William Reardon, thirty-four years of age, a coal-handler of South Boston, died last week as the result of drinking carbolic acid from a bottle which he found in the lunch-basket of a friend, and supposed to contain whiskey. The danger from both the internal and external use of carbolic acid is so great that the greatest care ought to be taken in labelling bottles containing it.

Death at the Age of One Hundred and Three. — Miss Theresa Emery, probably the oldest resident of Maine, recently died at her home in Eliot, Me., aged one hundred and three years, six months and eight days. She was a daughter of a Revolutionary soldier, and had two brothers who served in the War of 1812. Up to within a short time of her death she was active and was able to read and sew without glasses. She was one of the young women who scattered flowers in the path of Lafayette on his visit to Portsmouth in 1825.

A Would-be Benefactor of Humanity. — The following letter was received by the Superintendent of a large hospital within ten miles of the State House.

Pleasant Valley, Ala.
September 24, 1898.

To the Supt. of Hospital of Boston Mass.

Dr, I have a medicine that I want you to test in your Hospital it will take a cancer out roots and all clean in 8 or 9 days, any old sore is a cancer if the directions are followed. Now, if you have any old sore of any kind, will you test it. I will give it free for two three or four or may be more, it is vegetable and harmless hoping that this request will meet approval it will not kill any person only the cancer it take the mater and say yes try it, I send stamp for answer

Yours truly

P. S. I want to put it on the Public.

NEW YORK.

The Consolidated Medical College. — The consolidated medical college began its first session on October 3d. Of the ninety-five members of the teaching faculty, twelve professors and twenty assistants were appointed during the summer. Twenty-two of the others were last year professors and instructors in the University Medical School, and forty-one connected with Bellevue Hospital Medical College.

Death of Dr. J. E. H. Nichols. — Dr. James E. H. Nichols, one of the attending surgeons of the Manhattan Eye and Ear Hospital, New York, died on September 11th at Sapphire, in the mountains of North Carolina. He was about forty years of age and was a graduate of the College of Physicians and Surgeons in the year 1885.

Death of Dr. George Trowbridge. — Dr. George Trowbridge died suddenly at his residence in New York on September 10th. He was a son of the late Amos H. Trowbridge, who was prominent in financial circles and president of one of the large national banks. He was born in New York City and was graduated from Yale College in 1878. He studied medicine in New York, and received the degree of M.D. from the College of Physicians and Surgeons in 1881. He was a successful and highly esteemed practitioner, but some time ago retired from active work in the profession.

Death of Dr. Thomas Seton Robertson. — Dr. Thomas Seton Robertson died suddenly at his residence in New York on September 7th, at the age of forty-five. He had not been in good health for some months, but his death was entirely unexpected and was immediately due to cardiac syncope induced by the intense heat. Dr. Robertson was born in Glasgow, Scotland, and commenced the study of medicine in London, where he had a thorough hospital training and for some time served as the assistant of Sir John MacNamara. After coming to the United States he received the degree of M.D. from the University of Vermont, in 1879, and settled in New York. He devoted himself assiduously to his work and built up an extensive and lucrative practice.

Bequest to a Medical School. — By the will of Dr. Thomas Seton Robertson, who died recently in New York, the sum of five thousand dollars is bequeathed to the Medical Department of the University of Vermont, of which he was a graduate, three-fourths the income from which is to be devoted to the purchase each year of a fine microscope, to be awarded to the student producing the best essay on any neurological subject. From the remainder of the income a pocket surgical case is to be awarded annually to the student writing the second best essay in the same department of medicine. These are to be known as the "Robertson Prizes." If any surplus remains from the residuary estate it is to be given to the medical school for the purchase of a large microscopical cabinet, with microscopes for the use of students, to be known as the "Robertson Memorial Cabinet."

The New Medical College Building. — At a meeting of the Executive Committee of the Council of the University of the City of New York held September 26th, a deed was accepted transferring from private ownership to the university the new medical college building at East Twenty-sixth Street and First Avenue, which was begun last year for the use of Bellevue Hospital Medical College. The university accepts the building subject to a purchase money mortgage equal to the value of the lot on which it stands. The university has also received from the former trustees of the Bellevue School the use of Carnegie Laboratory with the understanding that the building will become the property of the university when certain conditions agreed upon by the owners shall have been fulfilled. The property acquired by the university for its medical department represents, it is stated, an outlay of over half a million dollars. It was also announced by Chancellor MacCracken at the meeting that over one hundred thousand dollars had been received in gifts during the summer for the consolidated University and Bellevue Hospital Medical College, and that a medical endowment had been founded. A lady (whose name is withheld) whose husband in his lifetime was greatly interested in the university has given a sum sufficient to set apart three halls in the medical buildings for the use of the students in recreation hours. One will be a reception and study room, another will be devoted to a reference library, and the third is to be a Young Men's Christian Association hall.

Fatal Accident. — Another fatal accident has been added to the numerous lists of cases in which persons have been shot in mistake for deer in the Adirondack forests. On September 23d the only son (a lad fourteen years old) of Dr. Andrew F. Currier, the well-known gynecologist, was killed in this way, and what makes the tragedy seem doubly sad, the fatal shot was fired by his own party. Dr. Currier with his young son and a friend had gone to the Adirondacks for a week's hunting, and were accompanied by guides at the time of the accident. Some time ago it was suggested, for the purpose of preventing such melancholy catastrophes, that all individuals going about in the Adirondack woods during the game season should wear upon their persons some article of a bright scarlet color, so that there should never be any danger of their being mistaken for deer. It does not appear that this has ever been practically acted upon, but even if a custom of this kind had been in vogue it is possible that it might not have been the means of saving young Currier's life. According to the accounts reported the underbrush was exceedingly thick, and it was merely the movement of the bushes made by his body passing through them that attracted the attention of the other hunters. A deer's tracks had been discovered by the guides, and just before the moving of the foliage was observed the baying of the hounds had announced that the game was near.

Curious Effect of a Head Injury. — A case of unusual neurological interest has been under treatment for some time past at St. Vincent's Hospital. Dr. T. H. Curtin, the house-surgeon, who has had charge of it, states that the patient, William Larsen, a Norwegian, was admitted on September 5th in a state of coma, a block from a derrick on one of the piers having fallen upon his head and crushed in the right side of the skull, the fracture being nearly three inches

across. Most of the third frontal convolution of the brain had been destroyed and it was not expected that the man would survive more than a few hours; but two days after the fragments of bone had been removed, the edges trimmed, and all pressure removed from the brain, he recovered consciousness. The effect of the injury upon memory and speech was watched with special interest, and it was at first found that while he seemed rational and nearly normal in his understanding of what was said to him, all his answers to questions were in an unintelligible gibberish. After a few days, however, the condition of the brain had so far improved that his speech became entirely coherent; but the remarkable circumstance was noted that he could no longer speak in his mother tongue, but only in English. Before his accident, it was ascertained, he could talk fluently in both Norwegian and English. Another feature of the case is the development of great emotional sensitiveness; so that if any one conversing with him smiles, he is moved to laughter, and if the person looks depressed, he begins to weep. He recognizes his acquaintances immediately, and talks with interest of his plans for the future. There is also at St. Vincent's Hospital at the present time another patient who is recovering with a large area of the brain exposed. In this instance the fracture necessitated the removal of a section of the cranium about three inches long and one inch in width; but the destruction of cerebral tissue was less than in the other, and the injury was not attended with the same variety of phenomena.

Miscellany.

THE WORK OF THE RED CROSS SOCIETY.

In view of the various press criticisms of the work of the Red Cross Society, the following statement of Dr. N. Senn, published in the September 17th number of the *Journal of the American Medical Association* is of interest:

"Miss Clara Barton, President of the American Red Cross Society, has performed her onerous duties during the entire war with a devotion and earnestness that merit universal recognition at home and abroad. She has been tireless in her efforts to bring comfort to the soldiers at times when her services were most needed. The *Texas* and the little steamer *Red Cross*, under her command, made their appearance at Siboney at a time when outside help was most appreciated. Ice, medicines, dressings and hospital supplies were freely distributed among the sick and wounded. After the surrender of Santiago the *Texas* was the first vessel to enter its harbor on its errand of mercy in bringing food for the hungry Cubans and delicacies for the sick of the victorious and vanquished armies. The Red Cross Society established supply depots in all of the large camps and the good work done everywhere will live in the memories of all who were engaged in the conflict. Miss Barton has the confidence of the American people and she has sustained it through the present war by the thoughtful and timely distribution of the innumerable and liberal donations to the society she so well represents. An appropriate idea of what this society has done can be gained from the fact that in Camp Wikoff alone two thousand dollars of supplies are distributed daily. Miss Barton has been assisted in her widespread humanitarian work by a large staff of physicians and nurses who came to the relief of the medical officers at times when their services were most needed. After peace was declared, Miss Clara Barton immediately sailed for Havana to bring much-needed aid to the starving reconcentrados of the long-besieged city, while her numerous helpers continued their faithful work in the home camps. The work of the Red Cross received the moral and substantial support of the charitably disposed citizens throughout the United States and liberal donations from abroad. Recent experience has again demonstrated that this society is the most important auxiliary in war as well as other natural disasters in bringing prompt relief to the sufferers."

When all this is said, however, the fact remains that it was unfortunate the necessity for such assistance should ever have arisen.

RESOLUTIONS VOTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The following resolutions were offered, referred to the Executive Committee of the American Public Health Association and subsequently adopted by the Association:

Offered by Dr. Geo. H. Rohe:

Resolved, That the Committee on Public Health Legislation be continued; that it be authorized and requested to proceed along the lines of work already begun; that the Association reaffirms its endorsement of the creation of a National Department of Public Health. Adopted.

Presented by Dr. A. L. Gihon:

Resolved, That a committee of seven be appointed by the Chair to wait upon the President of the United States with a view of obtaining a bacteriological commission to go to Havana to study the cause and prevention of yellow fever. Adopted.

Offered by Dr. A. Walter Suiter:

Resolved, That this Association recommends that public health authorities in general exercise every possible means to effect the complete discontinuance of the use of the so-called long-tube nursing bottle, which is so largely a contributing factor in infant mortality. Adopted.

Offered by Dr. U. O. B. Wingate:

Resolved, That a committee of five be appointed by the Chair for the purpose of drafting and presenting to this Association, for adoption, a definition of the term "epidemic," for the guidance of health authorities in executing such laws as call for the declaration of the presence of an epidemic. Adopted.

Offered by Dr. Henry B. Horlbeck:

Resolved, That the Association call to the attention of the Government of the United States, the presence of leprosy in that country. This Association would urge upon the United States Government the necessity of establishing a leper home or colony, similiar to such institutions as now exist in Canada and Mexico, where such persons can be segregated, and in this manner protect the general public and, at the same time, afford these sufferers a proper home and medical care. Adopted.

METEOROLOGICAL RECORD

For the week ending September 24th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...18	29.80	72	81	62	90	79	84	S.	W.	4	7	G.	C.	
M..19	29.88	67	75	59	57	48	52	W.	W.	12	15	C.	C.	
T...20	30.07	58	67	50	64	54	59	W.	N.W.	8	8	C.	F.	
W..21	30.36	55	66	44	52	51	52	N.W.	S.W.	14	12	C.	C.	
T...22	30.20	62	73	51	72	73	72	S.W.	S.W.	12	16	F.	O.	
F...23	29.78	70	78	62	95	92	94	S.W.	S.W.	14	12	R.	O.	.74
S...24	29.97	58	70	48	94	100	98	N.E.	N.	18	14	R.	R.	.02
☞														

* O, cloudy; C., clear; F., fair; G., fog; H. hazy; S., smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 24, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1268	609	21.84	11.68	15.44	2.32	1.60
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	376	118	14.04	10.80	3.51	4.05	6.56
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	200	79	21.50	9.50	11.10	5.00	5.50
Boston	517,732	219	95	20.24	12.42	14.72	2.76	1.84
Cincinnati	405,000	105	—	8.64	10.58	4.80	1.92	1.92
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	—	—	—	—	—	—	—
Washington	277,000	104	38	—	—	—	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	60	21	26.56	11.62	16.66	3.32	—
Nashville	87,574	30	13	20.00	16.66	13.33	—	3.33
Charleston	65,165	—	—	—	—	—	—	—
Worcester	105,050	33	14	21.21	9.09	18.18	—	—
Fall River	85,949	36	22	19.39	8.31	19.39	—	—
Lowell	87,193	48	23	10.40	16.4	10.40	—	—
Cambridge	86,812	39	15	30.72	10.24	20.48	2.56	2.56
Lynn	65,220	18	4	16.66	11.11	5.55	5.55	—
New Bedford	62,416	22	4	24.90	4.15	16.60	8.30	—
Somerville	57,977	15	8	33.33	—	13.00	—	—
Lawrence	55,510	18	8	27.77	—	22.22	—	5.55
Springfield	54,790	17	8	17.64	—	11.76	—	5.88
Holyoke	42,364	23	15	43.47	25.10	34.80	4.35	—
Salem	36,062	16	2	—	12.50	—	—	—
Brockton	35,353	—	—	—	—	—	—	—
Malden	32,891	9	2	11.11	11.11	11.11	—	—
Chelsea	32,716	—	—	—	—	—	—	—
Haverhill	31,406	15	8	26.66	—	6.66	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,980	12	4	16.66	8.33	16.66	—	—
Fitchburg	28,392	7	6	57.12	—	42.84	—	—
Taunton	27,837	9	3	44.44	—	44.44	—	—
Quincy	22,562	4	3	50.00	—	50.00	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	10	2	20.00	10.00	10.00	10.00	—
Everett	21,575	—	—	—	—	—	—	—
North Adams	19,135	6	2	—	—	—	—	—
Chicopee	17,368	4	1	25.00	—	25.00	—	—
Medford	15,832	4	1	—	—	—	—	—
Newburyport	14,794	—	—	—	—	—	—	—
Melrose	11,465	2	1	—	—	—	—	—

Deaths reported 2,738: under five years of age 1,131; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 568, consumption 304, acute lung diseases 175, diarrheal diseases 357, diphtheria and croup 78, typhoid fever 75, whooping-cough 32, cerebro-spinal meningitis 14, erysipelas 5, scarlet fever 4, measles 3.

From whooping-cough New York 19, Philadelphia 4, Haverhill 3, Boston 2, Providence, Nashville, Cambridge and Somerville 1 each. From cerebro-spinal meningitis New York 5, Washington 4, Worcester, Cambridge, Somerville, Holyoke and Fitchburg 1 each. From erysipelas Providence 3, New York and Philadelphia 1 each. From scarlet fever New York 3, Philadelphia 1. From measles New York 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending September 17th, the death-rate was 24.0. Deaths reported 5,165; acute diseases of the respiratory organs (London) 135, diarrhea 1,315, diphtheria 70, whooping-cough 67, fever 43, measles 28, scarlet fever 22.

The death-rates ranged from 15.1 in West Ham to 40.6 in Sunderland; Birmingham 20.9, Bradford 24.3, Cardiff 22.0, Huddersfield 27.0, Hull 30.6, Leeds 24.0, Liverpool 29.6, London 21.2, Manchester 31.0, Newcastle-on-Tyne 30.9, Nottingham 25.2, Portsmouth 16.5, Sheffield 29.3, Wolverhampton 33.2.

RECENT DEATHS.

JOHN BENEDICT CURTIS, M.D., M.M.S.S., died in East Cambridge, October 1, 1898, aged thirty-one years.

GEORGE DANFORTH COLONY, M.D., M.M.S.S., died in Fitchburg, October 1, 1898, aged seventy years.

BOOKS AND PAMPHLETS RECEIVED.

Neurotic Eczema. By L. Duncan Bulkley, A.M., M.D., New York. Reprint. 1898.

Post-Operative Insanity. By R. Harvey Reed, M.D., Rock Springs, Wyo. Reprint. 1898.

Katatonia. By Frederick Peterson, M.D., and Charles H. Langdon, M.D. Reprint. 1897.

Acute Chloral Dementia Simulating Paretic Dementia. By Henry Waldo Coe, M.D., Portland, Ore. Reprint. 1898.

First Annual Report of the Trustees of the Boston Insane Hospital for the Year ending January 31, 1898. Boston. 1898.

The Annual Statistics of Manufacturers, 1897. Twelfth Report. Boston: Wright & Potter Printing Co., State Printers. 1898.

A Study of Four Cases of Full-Time Extrauterine Pregnancy. By James Oliver, M.D., F.R.S.E., F.L.S., London. Reprint. 1898.

The Advantage of Physical Education as a Prevention of Disease. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1898.

Twenty-eighth Annual Report of the Bureau of Statistics of Labor, March, 1898. Boston: Wright & Potter Printing Co., State Printers. 1898.

Medical Department of the College of Physicians and Surgeons of San Francisco, Third Session commencing October 3, 1898 and ending July 1, 1899.

A Contribution to the Surgery of Gastroptosis and Enteroptosis. Preparation of the Patient for Operation. By Byron B. Davis, M.D., Omaha, Neb. Reprints. 1897-98.

Upon the Existence of a Minute Micro-organism Associated with Cases of Progressive Portal Cirrhosis. By J. G. Adami, M.A., M.D., F.R.S.E., Montreal. Reprint. 1898.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By Richard C. Cabot, M.D. Third revised edition. New York: William Wood & Co. 1898.

Bulletin of the Harvard Medical Alumni Association, No. 12, Report of the Eighth Annual Meeting held in Boston, June 28, 1898. Boston: Published by the Association. 1898.

The Employment of Solutions of Toluidin-Blue as Collyria, and as a Stain for Corneal Abrasions and Ulcers. By Clarence A. Veasey, A.M., M.D., Philadelphia. Reprint. 1898.

Some Remarks Concerning Rectal Affections, with Especial Reference to the Physical Exploration of the Rectum. By Lewis H. Adler, Jr., M.D., Philadelphia, Pa. Reprint. 1898.

An American Text-Book of Gynecology, Medical and Surgical, for Practitioners and Students. Edited by J. M. Baldy, M.D. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

Proceedings of the Tenth Annual Session of the Association of American Anatomists, held at Cornell University, Ithaca, N. Y., December 28 to 30, 1897, to which is appended a List of Members. Washington, D. C. 1898.

Beneficial Effects of the Withdrawal of Bromides in the Treatment of Epilepsy. New Paths in Psychiatry. Vibratory Therapeutics. A Case of Amaurotic Family Idiocy with Autopsy. By Frederick Peterson, M.D., New York. Reprints. 1897-98.

A Text-Book upon the Pathogenic Bacteria for Students of Medicine and Physicians. By Joseph McFarland, M.D., Professor of Pathology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Medico-Chirurgical Hospital and to the Rush Hospital for Consumption and Allied Diseases, Philadelphia; Fellow of the College of Physicians of Philadelphia. With 134 illustrations. Second edition, revised and enlarged. Philadelphia: W. B. Saunders. 1898.

Address.

THE PHYSICIAN AND HIS SURROUNDINGS.[1]

BY J. S. GREENE, M.D., DORCHESTER.

MR. PRESIDENT AND FELLOWS OF THE NORFOLK DISTRICT MEDICAL SOCIETY: *The Physician*, as the subject of an Annual Address before a Society of Physicians, may have sufficient interest to justify its selection for even more than two consecutive years. Especially may this be true as we approach the end of this half century, which has seen such manifold changes not only in drugs and appliances and methods of working but in modes of thought and social conditions.

The Address of 1897 was entitled *The Physician and his Armamentarium*. It was a masterly review of the material resources at the disposal of the physician of the present day, and a comparison of these with those of a generation or two ago. The reasoned appeal was for a discriminating conservatism which should keep what is best among the means and methods of the earlier time in the treatment of disease. To-day you are to consider

The Physician and His Surroundings, not a different subject, but another phase; and the plea is for recognition of a present need of the *individuality* of the earlier day, broadened to fit the conditions of the present.

Such individuality should vitalize, not supersede, a knowledge, even to mastery, of the enormously expanded resources of the art of medicine and of the principles by which those resources are made effective. It should aid the exercise of a restrained intelligence in the choice of therapeutic agencies, a profound and penetrating scrutiny into the causes of disease, and a discriminating and refined diagnosis. As the physician's armamentarium has become complex and elaborate, so has the structure of society of which he is a part. Formerly armamentarium and the man were all in all. Apart from drugs and appliances his power lay chiefly in the influence of his personality, strengthened by "that strange spell, a name."

To-day armamentarium is much, but the shadow of the mighty name has become faint, and *doctor* is no longer a word to conjure by. Nevertheless he stands, no shadow, but a substantial personality, not to dissect nor analyze, but to view as a moving factor in the life of the age. As in Dr. Tanner's study so also in this, a glance at the past will serve to set forth the present in its due proportions.

First, then, the physician of the mid-century, — what manner of man was he in his day and generation? The veterans of the profession to-day knew him in their boyhood. He was the family physician. Then the life of the community was simple and placid compared with the complexity and din of the present. The local carpenter, for instance, was the architect and builder, and there was no need of the licensed plumber. The intelligent farmer who at school inclined to arithmetic became the surveyor of the neighborhood. The woman's life was wholly domestic. Of course there were social gatherings of the people, but of concerted intellectual resource outside the great cities there was little besides the debating club, the circulating library, and now and then a lecture. There were three learned professions; the schoolmaster made a fourth; and this quadrilateral dominated the intellectual and the moral life of the community. In local politics two corners of the quadrilateral usually regulated the other two. If the lawyer and the doctor were at variance on the question of the minister or the schoolmaster, the tide of battle ebbed and flowed; but if these two powers agreed it was bad for the minister or the teacher upon whom they frowned. Perhaps the doctor was self-sufficient. If so who can wonder. Of the Art of Medicine as it then existed "all that was knowable, he knew it"; and, to adapt the remaining lines of the amusing quatrain on the famous master of Baliol College, "What he knew not wasn't knowledge." Perhaps the doctor was now and then intolerant. If so, it was a trait more or less characteristic of his time. Certainly he was self-reliant and fertile in expedient. He had need to be so in a time when in our State the only institutions for care and relief of the sick were the Massachusetts General Hospital, the Eye and Ear Infirmary and the Boston Dispensary, when medical schools were not only few but feeble, and post-graduate courses had not been dreamed of.

The physician of that day was not cosmopolitan. He rarely travelled far, and he gained most of his knowledge of the wide world from his reading. But let us not suppose that the physician of the mid-century was less qualified than he of to-day for successfully meeting the wants of his patients. He may have been less definite in his diagnosis, more empirical in his treatment, but he had more time to know his patients. He knew their constitution and temperament through his knowledge of lines of descent and the influences of intermarriage. What we trace by inquiry he possessed by inheritance and birthright. Perhaps he was born among them. Often in his college days he had taught school in some neighboring district. He knew how to coddle his practice. He called it husbanding. We do not hear the term nowadays. The process consisted in calling around at the house at odd times when he hadn't anything else to do, and was not in attendance upon any member of the family. It showed his interest and helped to keep himself in evidence. He grew to have a sort of proprietary feeling towards the family, and to be jealous of any poaching on his preserves. Naturally the other doctor also gave due attention to the art of husbanding; and, if the fields reclaimed by his own special industry were not broad enough to occupy all his energies, he would have a little time to spare where work seemed to be needed just over the border. Sometimes he could manage to be more or less definitely invited over. Generally, however, it was the men who were most busy and successful on their own reservations who were actually urged to extend their ministrations. Whichever way it came about, it made trouble, and caused ill-suppressed jealousy and dislike; and it was no easy matter for a family to change its doctor.

Thus the family and the doctor knew each other's hopes and fears, — shared each other's jealousies and rivalries; and in a closer and more enduring sense than now the doctor was the family physician. His patients were the same kind of men and women as those of to-day; but the times of which they were a part, the problems pressing upon them, the hurry and push of the course they traversed, how different!

Let us take a single example: Fifty and odd years

[1] Address read before the Norfolk District Medical Society, May 10, 1899.

ago, in this part of Boston which was the old town of Dorchester, was a manufacturer of chocolate. He built a mill, where he made the product himself, with such help as he required; and when he had a wagon load he drove into the city and sold his stock among the grocers. He was a large-minded, generous-hearted, public-spirited man, and he made a fortune by enterprise and thrift. At his hospitable board he entertained many men of note, and his bounty always went forth to the needy. Peter Parley made him the subject of a sketch in his magazine to inspire the youth of the land to generous deeds. By this man's will his thousands were distributed among his heirs; and this is one of the articles of that will: "Art. 7th. It has been my practice for years past to distribute to the deserving poor of this vicinity, Bread. I wish this distribution continued to the persons whose names stand on my book on pages No. fifty-one and two. And the same quantity as there mentioned to be distributed until, by death, removal, or better circumstances, the recipients shall be reduced to ten in number. Then I would have each survivor receive twelve dollars and the distribution closed." Such a man was the wealthy chocolate manufacturer of the earlier half of the century. We pass by the son, who inherited the business, and by it made his fortune. Then came a step-grandson of the elder manufacturer, the legatee of one hundred dollars by the will from which we have quoted. This legatee, then a poor young man, was enabled to purchase the business through the confidence of men of means in his honesty and capacity; and he, too, made a fortune. He, too, developed and showed to the world the traits which make for success. He, in his turn, was large-minded, generous-hearted, sagacious, enterprising, hospitable. Where his predecessor distributed tens and hundreds, he in life gave tens of thousands, and at his death the wonderful display of knowledge of the channels of beneficence and human sympathy through which by his will this multi-millionaire assigned his millions to the public good is now the admiration, the example of the world.

Parallels like this, though few so striking, could easily be multiplied. There is history in them, and better than citation from the newest cyclopedia they illustrate the momentum of our age. They are concrete examples, not merely of the resources of the time, but of the men who handle those resources and who are handled by them. They are the same kind of men that their grandfathers were, but changed in their attitude, — modified by their changed environments. The armamentaria of all these men are new and elaborate, and they, too, must assort and choose among the new and the old. It was the difference in the times rather than in the traits which in the elder manufacturer limited the exercise of these traits to the field of business and private citizenship, while in the younger the like traits were levied upon for the public service. What is significant for us in this regard is that in his conscientious discharge not only of the claims of private charity but of public responsibility, as mayor of Boston, and as member of congress for a Boston constituency, Mr. Pierce kept always in touch with the men who represented the worthiest ideals of the medical profession. He sought their opinions and welcomed their advice; and some of the acts which he accomplished under such inspiration, like the appointment of the first Boston Board of Health (whose chairman, of Mayor Pierce's selection, still honors his important office) and the stamping out of a serious small-pox epidemic, — acts like these, in their remoter effects, still powerfully affect the public health. The physician of the forties could influence his rich and liberal-hearted neighbors in the distribution of their private charities while public charities were few. The physician of the nineties helps to shape the channels through which private munificence flows not only to the individual poor, but to hospitals, to homes for aged and disabled, to institutions of learning, museums of art, and innumerable causes which bless, and will continue to bless, humanity.

This brings us in face of the relation of the physician to the science of preventive medicine. The physician in the earlier time knew no such science. To-day its problems everywhere confront him, and he should be able and ready to illumine the minds and urge the duties of his fellow-citizens and their legislators on subjects and measures which concern the public health. Of such subjects and measures we may recognize two classes, occupying different levels; a higher and a lower plane. In the higher must be classed such questions as the suppression or restriction of epidemic diseases, the better sanitation of communities, the wiser administration of public charities, and sometimes a voice in the nomination of the fittest persons to guide such causes and to secure for them their completest success. On this plane the physician often has with him the professional philanthropist, the practical politician and the force of public sentiment. His word has the weight belonging to the disinterested expert, and the cause he espouses triumphs, by reason of his advocacy, over the opposition of prejudice and selfish interests.

Also, there are measures of the lower plane, towards which the physician may feel himself likewise conscious of disinterested purpose and of expert knowledge, but where philosophic theorists and professional philanthropists combining with the forces of charlatanry may obscure the issue with imputations of arrogance and unworthy motives and with phrases about the liberty of the individual. The cause thus hampered may suffer check. The physician must console himself with the reflection that if he have felt constrained to break a lance in a field where the weapons and laws of knight errantry are not acknowledged, his defeat has been without dishonor since he has fought not for privilege nor emolument, and has kept his escutcheon clear. He will reflect that victory in this kind of contest would have been barren if it placed him too far in advance to receive the support of slow-forming public sentiment; and he will still labor according to his opportunities to the end that sound experience shall be received as guide,— that ignorant or false assumption shall no more have passwords accepted by the commonsense of common people.

Passing from the domain of Preventive or State Medicine, where science is the guide, to the region where medical art confronts the daily questions which disease and disability present, we enter the social field, where characteristics of our time may be noted as currents affecting the moral atmosphere and offering problems from a medical point of view. We need touch but lightly upon the trait indicated in the common remark, that the masses of mankind are gullible and that people like to be humbugged. This, so far as it is true, is a legacy to our time from all the past. We do not look forward to a day in the nearer future

when there shall be no gulls. Having now in larger proportion than formerly a more or less at-leisure class, not absorbed in self-culture or the various forms of philanthropic endeavor, we have a relative excess of goodies of either sex whose office seems to be to tempt and catch the gulls for the quacks to pluck; and they approach their quarry from opposite edges of the field of medicine. From the one side come those who are inventing formulas by means of which everything can be simplified into a statement. They readily become proselytors, even martyrs if occasion serve. While dogmatists in religion and philosophy are losing ground and the system-mongers in medicine are dropping to the rear, there is still something in the old catch-words, and some of them are maintained with a sort of grim tenacity. From the opposite quarter come a less sophisticated but not less earnest band, who grope for what is mysterious and supernatural; and the tide of popularity is with these at present.

May not this current in society meet a social want in two ways: in that it may serve with some as a counterpoise to the disposition towards luxurious ease always seen in highly-developed social states, and with others more selfish as a hoped-for means of indulgence in that same ease with possible escape from penalties?

What we may hope for in the new century is first among the leaders of thought, and then among the intelligent and cultivated many, a reaction against the nervous hurry of life, a recall to rational ideals, an assertion of the prime necessity (as Hammerton puts it) of distinguishing what is attainable from what is impracticable. When this gospel is more widely preached and exemplified there will be readier acceptance of the truth that the basis of health is physiological hygiene; and faith in nostrums and fads will weaken like faith in dogmas and systems.

The physician is sometimes approached by some intelligent friend who says in substance, "I want you for your experience in sickness, for your knowledge of my constitution, or for your reputed skill in battling the enemy, disease; but I wish to know if I may try this or that potion or pellet for a disagreeable symptom, this or that fad or system to amuse my fancy with the idea that I am doing something, believing that it will do me no harm, if it does no good." To such inquiry he may take issue in this wise: Be the remedies inert or powerful, I care not. If you take them as remedies they are not harmless, and are the less so if they relieve. You take them for a symptom which is generally a sensation. The symptom ceases; another symptom or sensation is substituted; you are ready for another remedy. The system is unworkable. You cannot be always chasing symptoms. Symptoms are not always enemies; they are often friendly monitors, useful guides. When you are seeking antidotes for symptoms you are breeding attention which begets a progeny of new symptoms. Your best hope is in finding an adviser who has a sense superior to the mere hunting down of symptoms. If that adviser call himself a Pathist of any sort, he is superior to his system, which must, however, cramp and limit him in so far as he heeds it. To be symptom fighting is *not* harmless. It leads to symptom seeking and finding. It concentrates your attention upon yourself and your woes, and withdraws it from worthier matters. Symptoms are chiefly to be heeded as indicating conditions and tendencies. Come to me if you wish, but look upon me as an interpreter of conditions and tendencies. Do not appeal to me to relieve a symptom primarily, but to show you what symptoms may be disregarded, what ones guided, what others controlled or checked. If you ask me to study and understand you, to remove hindrances, to give you the best chance, I will try. If you wish to understand yourself, and to know your needs, your capacities and limitations, I will try to help you to gain something practically useful in such self-knowledge.

There are other fads that take the believer away from worse than useless attention to his worse self; but instead of an unworkable system, they supply a pseudo-system that is sure to be, by the undisciplined minds that are drawn to such notions, *over*-worked. The physician with sense and balance secured by discipline and large experience knows that he may well watch and guard himself against tendencies to cocksureness which may verge toward crankiness.

The men and women in the veal stage of mental insight who get a glimmer of a truth out of perspective and dress and decorate it into a doctrine are irredeemable cranks. Are they therefore to be avoided? Yes, doubtless, as a rule. But here comes in a paradox. There are probably some people of such mental mould (whether with too much gelatine and too little fibre or howsoever described) that they become squashy, and easily flop, and with difficulty are set upright again. Such people are the appropriate material for the cranks to work over, and into them the cranks convey the stiffening which brings the semblance of moral equipoise and thereby of cure,—a kind of cure which the man of science and sound sense would be powerless to promote, because incapable of what, to him, were humbug. That is the class of patients which the physician is, and may well be, glad to have taken in hand by cranks of whatever stripe; though he might wisely shrink from recommending such a process.

But I must not go farther astray from my chosen subject, the physician, to discuss the patient, for then there would be no end.

The doctor's duty toward himself is logically the first which confronts him, and the one which should be settled first.

Sir Alfred Milner, one of the most popular and successful among the public men of England, has said that,

"Our age of bustle succeeds a period of unprecedented fertility in time-saving inventions," and "in this fact we have only another instance of the old, old story, that the actual effects of any great change of human circumstances are constantly the opposite of what *a priori* reasoning would have led you to expect."[1]

We might make an extension of Sir Alfred's observation to this effect: that, while we see an age of extraordinary bustle attended, as might have been anticipated, by abundant evidence of overstrain, we do not everywhere see the physician as *a priori* we might have expected to see him, conspicuous in warning, interpreting, calming. On the contrary, we often find him foremost among the hurrying crowd, sharing the excitement of the struggle, seemingly unconscious that he is losing his place, his opportunity, and perhaps a great deal of himself, thereby supplying

[1] Response of Sir Alfred Milner at a banquet given in his honor before his departure as High Commissioner to South Africa. See New York Nation, April 15, 1897.

another example of the same old story. The physician's treatment of himself permeates his career, and immensely influences his true success in treating others. Undoubtedly he should *be* himself; and to be his best and fullest self he should not omit to study and observe himself sufficiently to understand his bodily and mental constitution, and thus to know not only his capacities but his limitations. Having this knowledge, he will place himself where he will find something to do, and he will not blindly be led to overdo. He will be likely to escape on the one hand the disappointment of utter failure, and on the other hand the humiliation of a break-down in health. He will neither miss his vocation nor omit his vacation.

Thus can he successfully adjust his relations with the world around him, and keep his poise. Thus can he qualify himself in that most convenient worldly wisdom which consists in rightly understanding individual human nature and accurately estimating the strength of motives and impulses. Thus can he exert his best influence over those who look to him for guidance; and though he "live laborious days and nights devoid of ease," his lot is still most fortunate.

He may not want to be beneficent, any more than Faust wanted to be, but he must be whether he will or not, if he attends to his work. He may vastly prefer that his play shall be wholly for fun, reckless of results; but he cannot choose but gain profit for his patients even here. If he devote himself to open-air sports, he gains personal experience in the conditions and limitations of outdoor exercise which increases his worth as an adviser over a wide range of remedial influences. If he prefer for his recreation the society of books, he is accumulating treasures of thought and fact which will inevitably be distilled in the crucible of his mental faculties — his powers of reasoning and comparison — and supplied to his patients at appropriate time in the form of apt illustration to impress the needed advice upon their minds. Whatever his tastes, they still contribute to his value as a guide to his fellowmen. He is a man, and nothing of human interest is foreign to him. So likewise, nothing in the range of human interest is useless in the equipment of the man for wise dealing as an adviser of men.

When the physician, by knowledge of himself and by practising justice towards himself, has learned to make the most of himself, he will practise justice towards his fellows in the profession.

It matters little whether his calling be styled a profession or a trade or a business. If it is a business, it need not be conducted as pirates conduct their business. If it is a profession, it will be none the worse if business methods share its conduct. Profession or business, it may well cultivate the industry, the accuracy, the sodality of the craftsman. Whatever we name it, it means work. No matter how lofty one's ideal, it must still be a practicable one. We want to make a living; we want money and fame: good. Let each get what he can of both. Only in our professional, business craft we defeat our purpose if we put either or both these objects foremost. The ethics of it are indispensable to real, ultimate success; and the ethics of it are very simply summed up in a motto: "The interests of our patients our leading purpose." And the second is like, "To our fellow-workers their chance."

It is a hustling age, and hence it is the age wherein the young men have their opportunity. They have come to the front; very well; let us all be, and continue to be, young. But ripe judgment can never remain at a discount. The high authority whom I have quoted says, in another utterance, "In these days of ever-increasing hurry and ever-quickening pace, a man requires more judgment, more balance of mind, more strength of character, than ever before, to husband his forces and control his life."[3]

These are traits of maturity, and we must agree that if old men may hustle, young men should cultivate balance of mind.

The physician as I view him holds a position unassailable. He has no rival. The specialists are not rivals; they are one and all his aids and allies; and in a sense sufficiently real, his subordinates. They are to him as the makers of main-springs or dials are to the watchmaker. He knows their work and can judge of its value; they do not and cannot know, though they may appreciate his. Who are the specialists? They are not dermatologists, neurologists, and the like, who avow a preference for treating one region of the body rather than the man in the body, — or else one class of diseases rather than disease. These are physicians, with especial lines of eminence. I would call them especialists rather than opprobiously name them pseudo-specialists. Compared with the ideal physician, they are like the man with expansive chest or huge biceps as compared with the Apollo Belvedere. Their advantages in so far as they are especial, deprive them of the poise which belongs to perfect symmetry. The specialists are sociologists, vital statisticians, climatologists, sanitary engineers, who deal at a distance with man in masses and groups, or with the grand environments of man. The physician is in direct relation with individual men. Or they are oculists, aurists, laryngoloists, etc., — surgeons one and all, who have limited their studies and directed their skill to one delicate or intricate organ or part of the body. Then there are the laboratory specialists, studying microbes, molecules and atoms, who are, by the minuteness of their scrutiny, as far removed from contact and insight with respect to the individual as are the specialists of the other extreme, who deal with masses. All these are allies, never rivals, of the physician. They could never trench upon his province if he were what he should be — the starter, the supervisor, the *deus ex machina* for the individual man.

I may not assert that the average physician fulfils this rôle; but this is surely what he should aim at, and is what he can arrive at. If by reason of the extraordinary activity of recent years in scientific research and in appliances therefor, sub-dividing and multiplying the lines of progress, enlarging the field of their distribution and accelerating the advance thereupon, the specialist, thorough, painstaking and confident, has become more conspicuous than the physician, we have here but one of the anomalies of a time of transition and readjustment. Just at present it seems as if specialism were running riot. The physician cannot, in justice to his responsibilities, when he sends his patient to a specialist, permit the patient, without a respectful protest, to be passed from one specialist to the next and the next — from the aurist, perhaps, to the rhinologist, from him to the craniolo-

[3] Sir Alfred Milner, in an address at Froebel Institute, of whose success in practical affairs a discriminating admirer said that "it was a tribute to the world that Sir Alfred Milner could succeed in it." Id.

gist, from him to the craniotomist — not knowing the while where to seek for the victim, unless perchance he seek and find him, or some of the pieces, in the jars, or on the slides, of the pathologist. Rather let the specialist continue the safe and time-honored policy towards patients of remanding them, with such special aid and advice as he can give, to the wise discretion of the physician, if such there be, who knows the individual and can allow for the personal equation.

The physician who understands himself and, while claiming his own opportunity, accords to his co-workers their chance, is ready for his highest purpose, the interest of his patient. He is prepared to help him to make the most of himself; and this phrase is the expression of the highest ideal of his professional work.

It is a work which begins at the cradle, yes, at the womb of the mother. It would fain begin farther back if it could, even with the ancestors. Indeed it *sometimes* has its influence in matrimonial alliances; sometimes, too, in the conditions attending the inception, oftener still the development, of the human embryo. Introducing homunculus into the world, guiding him through the ailments of infancy and childhood, assigned to deal with his future mishaps and illnesses, is it not the logical, and, as humanity advances to clearer vision, the inevitable tendency, that the physician be looked to by the individual man for help to balance and harmonize his attributes, for aid to improve himself towards perfection, and so to improve the type? He has not to force himself forward, nor thrust his views upon unwilling minds. It is his advantage that people know where he is, and not until their conscious need presents is his opportunity at hand. Their disadvantage, often their misfortune, is that they know not where to look for help, know not even that they need help, — and when they know that they need, too often go to false guides, and are led still farther astray. This we cannot help and of it we need not complain. It is not our affair if untrained minds are unable to discriminate and to weigh the value of evidence, and if to such the advice of one person is as good as that of another. We cannot help it, but it is too often the spectacle of blind leading the blind, and the blind being willingly led. When they fall into the ditch together, it is but the working out of that principle of natural selection with survival of the fittest which has governed the evolution of life on this planet until now; which now, our wisest philosophers tell us is, notwithstanding an occasional war, gradually but surely dropping the way of struggle and fight, and pursuing its upward development through cultivation and expansion of the sympathetic, altruistic faculties of the soul. It is in this final phase of human evolution that the physician must more and more be recognized as leader. His field of labor may not be large, but is sure to be productive. The ignorant, the giddy, the narrowly prejudiced and the headstrong may keep aloof or fall away, but the intelligent, the teachable, the sensible, will seek him with evergrowing confidence. His *entourage* from patients, will often become clients, seeking his aid to keep the full advantage of recovered health, to avoid the pitfalls where lurk disease, as the *clientèle* of the wise lawyer look to him for guards against drifting tendencies towards litigation as well as for successful contests in the tribunals of law.

This doctor is not merely a counsellor, he becomes a judge. His highest function is to adjudicate. The patient comes to you and makes complaint. You hear the case, and find perhaps that he has mistaken the offender. Instead of head, for example, it is the stomach or eyes, or again, instead of any organ it is deficient power in the nervous centres. You then find that the supposed offending parts are the victims rather than the assailants; that the patient as constable has taken the side of the wrong party, and unwittingly made himself *particeps criminis*. His habits or his prejudices have borne false witness; but, called into court, break down in their testimony and humbly confess their error. In your conduct of the trial, you arouse the patient's sense of justice, and get him to espouse the cause of the injured organs or functions. At the least and worst, you make him admit that the attacked party is justified in resisting, and is not to be blamed if it reckons the officer of the law as an aggressor and singles him out as chief target for abuse. The judge should never spare the complainant from a clear showing up to himself. If the complainant's action is influenced by the spirit of self-sacrifice and devotion to supposed duty, the consequences may be as deplorable as if he were blinded by self-indulgence. He must be made to see the way he is going and to have glimpses of the remoter effects of his policy. Many are the saints on earth who have been led by the common-sense of a far from saintly adviser to see that God's work can best be done towards God's creatures by noting and respecting the God-given capacities and limitations of the would-be doer. The paradox is always being wrought out that it may be the wisest unselfishness to look out for number one.

"The thoughts of men have widened with the process of the suns," and those of us who have carried on our work within this generation, can see, as we review the field, that the work and thought of the physician have widened, and have relatively more than kept pace with the advance.

A generation ago, who among the elders could confidently affirm that the scope of the physician had greatly exceeded that of Macbeth's doctor, who to the despairing question, "Canst thou not minister to a mind diseased, raze out the written troubles of the brain, and cleanse the foul body of the perilous stuff that weighs upon the heart?" meekly answered, "No; therein the patient must minister to himself." And who, to-day, with the knowledge born of experience in the physician's work and word, would hesitate to assert that the predominant ideal and aim in our profession has widened to an extent to bring within its purpose, and almost comprise within its successful achievement, enough to warrant at least a qualified reply in the affirmative, when such question were repeated? Can we not, do we not — oftener, with clearer confidence, more effectively than they of old — say to the despairing, overburdened mind, "We can show you a way; we can pilot you; you need never despair. You are in the world to do one man's work, for all must work at something. The work assigned you lies before you, and you are in it and at it. But you must not be drawn into attempting the work of another man, nor of two men; and *your work* you must proceed with aided by the tools assigned you, namely, your own endowments of strength and capacity; and you must not work overtime. If you have entered upon more than this, you must pause,

retreat if need be, enough to readjust yourself to actual conditions (partly, perhaps, but not wholly, of your own making), and then proceed, always proceed, limited, doubtless, but not balked, handicapped, if you will, but never crushed and never out of the procession. I cannot carry you; no one can do that; but I, better perhaps than another, can point out how you may carry yourself."

To many a morbid mind, this or something like, is the way to minister. Surely such methods and aims are far more constantly present to the mind and purpose of the physician than formerly, and they are essential in the evolution of the race. It is the work of exemplifying and inculcating to the community the best way of living, and to each individual how to minimize his risks, guard his vulnerable points, emphasize his advantages and stand four square to adverse circumstance.

Here our study of the physician and his surroundings may cease. From beginning to end the emphasis (whether we would or not) has been on the importance of the personal equation. Attention to this is the true individualism in medicine which displaces dogmatism and all the other isms. It means the influence of the personality of the physician and his recognition of the personality of the patient.

This art or faculty, amplified from the narrower conditions of the past and comprehending the complexity of the present, is the legacy of the physician of the mid-century to him of the century's turning.

Original Articles.

THE ABUSE OF MEDICAL CHARITIES.[1]

BY JAMES C. WHITE, M.D., BOSTON.

Fellow Alumni: — I ask your kind attention to some brief remarks upon a subject which has strongly interested our profession of late, — the so-called abuse of medical charities. You are all well acquainted with the recent widespread agitation of the question, and with the efforts which have been made in this country and Great Britain to correct the evil by legislation and stimulation of public opinion. I should certainly not introduce the matter here, did I not feel that something remained to be said from the teachers' point of view, which should concern you, although I am aware that my views may not be those of many who are present.

I have been teaching medical students just forty years, and I have been in almost daily attendance upon out-patient service since 1850. I may fairly claim then to have founded my opinions upon the subject after experience.

I wish to state at once that I admit the legitimacy of the term "abuse of medical charities" in connection with the administration of hospitals and dispensaries, but it must be applied with discrimination. According to my observation, patients come to free hospitals because they are poor and unable to pay any professional fee; a majority, perhaps, because they expect to find in them a class of physicians whom they regard as more skilful than those who practise medicine in their humble neighborhoods in city or country round about us; because they are foreigners, in great numbers, paupers for generations, and accustomed to depend upon such charity in former homes; because, having obscure diseases, they are sent thither by their physicians' honesty and modesty for the benefit of superior skill; because, in the case of a large superior class, represented by school-teachers, students, shop-girls, artisans and domestics, they seek there a class of physicians whose services elsewhere they could not pay for; and, lastly, because, in much smaller proportion than is commonly supposed, some do not hesitate to seek there gratis professional advice they are well able to pay for outside.

The number of patients treated at the Massachusetts General Hospital, according to the last published report was as follows:

Patients in wards		4,204
Out-patients:	Medical	10,527
	Surgical	10,120
	Skin	2,309
	Throat	2,216
	Nervous	1,521
	Eye	1,294
	Total	29,987

Now were hospitals founded and conducted for the sole purpose of administering medical charity, I should agree with the most active agitators of the question of so-called reform that no excuse can be found for the existing method of administering them; for I have no doubt that a considerable proportion of the above-mentioned 30,000 patients were able to pay some fee. But there is another and great purpose for which hospitals are founded, in addition to the care of the sick, namely, the education of physicians, and in foreign governmental hospitals this object has always been predominant; hence their fame and vast usefulness. Without hospitals and dispensaries devoted in part to this purpose, there could be no medical schools, no such thing as an educated physician, no control of disease. A great school of medicine requires unlimited clinical material for the uses of its many departments, and it must be at its complete disposition. Now to accomplish this high purpose in this prosperous community of ours by means of pauper patients alone is entirely out of the question.

Permit me to use the requirements of my own department, the best known to me, in partial illustration. It is necessary to state that it is impossible to teach dermatology without abundant clinical material. There are more than one hundred diseases of the skin. Having no beds at its command, by means of which alone the natural processes of evolution and involution and the results of treatment can be adequately studied, the department must substitute the brief inspection of patients in illustration of each individual affection; and it requires a great number of examples to properly represent all phases of a disease. Indeed, to teach properly the three courses on our schedule — the third year, the fourth year, and the graduates — requires a much greater number than the three or four thousand patients at the command of the department. It is true that certain forms of skin disease may be best studied among the pauper class and our foreign population, such as the parasitic diseases and the so-called immigrant dermatoses; but it is even more important that the student should learn to know every type of disease, as it occurs in modified forms in the various occupations and in every class of society. He should have the opportunity of seeing, also, every possible

[1] Remarks before the Harvard Medical Alumni Association, at the Annual Dinner, June, 1898.

example of the rarer affections, which are attracted to the clinic through the reputation of the hospital and its staff, which is the hospital, from all parts of the New England States and the British Provinces. Were such interesting cases treated by the teacher in his private office, he would be the gainer in fees, the student would be the loser of knowledge. The possible three or five or ten dollar patient is just as important to the student for educational purposes as the one-dollar, the fifty-cent, or the pauper patient. Were every patient able to pay something excluded from the clinic because some physician outside should receive this, proper clinical teaching would be no longer possible.

I recognise no higher object than the education of the student of medicine to the highest plane of accomplishment, for this knowledge is later diffused along illimitable paths of humanity and charity. I would use, therefore, every means not immoral or inhumane, to this end, if essential. Good medical education is costly. It costs the family, mostly in moderate circumstances, much deprivation, often, to pay for it. The sister or widowed mother toils for the boy's sake for four long years. The student engages in the most wearisome, even menial, occupation, to get this much-prized knowledge. The facts which are laid open to the Committee on Scholarships are often pitiful indeed. But others are helping him, — the noble men and women of this community who have contributed so generously in the past and so often in recent years to the funds of the school and hospitals are aiding him; and so is the great body of teachers who work so faithfully and for so little recompense. Therefore let not the physician, young or old, who once received these same benefits, complain too loudly, if, in turn, necessary and legitimate use be made of a few patients, for the present student's sake, who might pay him a fee, nor forget that he was once well pleased to receive similar advantages.

Such use of clinical material then, representing all occupations and classes for direct purposes of teaching, is, I maintain, no abuse of hospital charity, no injury or degradation to the person seeking medical advice under such conditions, for recompense is made by every one of them in permitting themselves to be used for these ends. It is no light matter for a patient to go before a class and submit to inspection, more or less extensive; and every patient who grants us this privilege makes a positive and valuable contribution to the cause of medical education and humanity. This should be definitely understood by the public and the profession, that those who seek advice at hospitals and dispensaries, where medical instruction is given, on account of the reputation and skill of the teachers upon the staff, do allow themselves, as proper return for such advice, to be used for the purposes of clinical teaching. Objection is rarely made to such treatment by patients of any class; but they should be made to feel that an obligation on their part has been incurred, and has been thus honestly and fitly paid.

The loud outcry against hospital abuse and consequent pecuniary damage to physicians at large would, in my opinion, never have arisen, were it believed that patients were admitted to them for such purposes only. It is one more reason why the Medical School should have its own hospital; for its professional staff would consist of its teachers exclusively, and it would be recognised by the public and the profession that every patient admitted to its wards and out-patient departments would be used for clinical instruction. There could be no longer any question of the motives of its physicians or just ground of complaint of the abuse of medical charity, for all must admit the necessity and legitimacy of such use of clinical material in sufficient amount. This must be determined by the needs and opportunities of each department, not by indiscriminate accusations on the part of the profession at large. The honor of teachers must be trusted to this extent.

ROUND SHOULDERS.[1]

BY ROBERT W. LOVETT, M.D., BOSTON.

THERE are certain points in connection with the condition commonly known as Round Shoulders which are not generally noted in speaking of it to which my attention has been directed by a series of thirty-seven consecutive cases occurring in private practice where there were good opportunities for observation. Twenty-six of these patients were girls and eleven were boys. These cases have all been of the same general type differing chiefly in detail and, although in every respect corresponding to what is ordinarily known as round shoulders, it might seem better for reasons which will be explained later, in speaking of them to use the more correct term of faulty attitude, which is more in use among teachers of physical training than among medical men.

Round shoulders is in general the name given by common consent to a faulty position of standing and sitting most often described as a condition of adolescence. The attitude is perfectly well known and is familiar to every one. The head is carried not erect but run forward somewhat, the shoulders slope forward, the scapulæ are unduly prominent behind and the chest appears narrow and flat; such, in a general way, are the most obvious characteristics of this condition.

If any attempt to correct this vicious attitude is made it is generally done by the parents who put on a peculiar kind of suspender, holding the shoulders back, or sometimes a more elaborate attempt is made by means of some steel or brace devised by the instrument maker. It is not the common custom to recognize the importance of the condition or to regard surgical advice as necessary.

The affection is not necessarily, as it is usually described, one of adolescence, but occurs in young children, for of the series of cases spoken of above the children were from four to fourteen years old; the majority being from six to ten years old.

The patients in the series alluded to lived mostly in the city and belonged to the better class where food and hygienic conditions should be good. Twenty-one of these children were brought for consultation because they stooped or protruded their abdomens. Sixteen came for advice because they had "weak ankles" and the round shoulders were mentioned incidentally or not at all. The remaining case came for treatment for a loose semilunar cartilage and examination showed a well-marked vicious attitude. In certain cases, in my own opinion in a large majority of the cases, round shoulders of any considerable degree form only

[1] Read by title before the American Orthopædic Association Boston, May 27, 1898.

a part of a general faulty attitude, the characteristics of which, it seems to me, are fairly constant. Proceeding from the consideration of these cases and others seen in hospital practice the whole class may be described as follows: These children are often thin and generally pale, although occasionally they may be fat and rosy. As a rule they have grown rapidly. They are most often nervous active children and not infrequently they are inclined to constipation. They are generally clumsy in running, inclined to fall easily and unsteady in their more finely co-ordinated muscular movements; their "balance" is poor. They stand with shoulders drooping and the dorsal spine somewhat rounded backward. If corrected they straighten up wholly or partly for a moment and then fall back into the original position.



What is equally characteristic with the position of the round shoulders is prominence of the abdomen, which is rarely absent. The lumbar spine is at times curved forward so that the patient stands with an unduly hollow back, at other times the lumbar spine does not differ from the normal curve, but the abdomen protrudes forward in its lower half and the walls seem lax and pendulous. In the severer cases that I have seen, an increased forward lumbar curve (lordosis) was present.

If the child is stripped to the hips and examined from in front and behind some lateral deviation of the trunk is most often noted. It was present to a well-marked degree in twenty of the thirty-seven cases noted above, which were routine examples of round shoulders and not ordinary cases of lateral curvature. In the other cases it was absent or very slight. The deviation of the trunk is seen to be due to a slight grade of lateral curvature of the spine, most cases that I have seen having a left lumbar curve with the corresponding slight curve to the right in the dorsal region. In no one of these cases can it be classed as anything more than the very earliest stage of lateral curvature and in only five had any lateral deviation been suspected. If every child with round shoulders of marked degree were stripped and examined, many cases of lateral curvature would be detected at a stage when treatment is generally satisfactory.

Pronated foot, "weak ankles," is another commonly associated symptom; indeed so constant is this association that in all children of from four to fourteen years old with weak ankles brought for treatment, it should make a part of the routine examination to examine the back for round shoulders and scoliosis. This is because "weak ankles" often are only the expression of a general muscular weakness.

There are, then, four elements most of which or all of which may be found in cases of so-called "round shoulders."

(1) Drooping shoulders and prominent scapulæ.
(2) Prominent abdomen, with lax walls.
(3) Slight lateral deviation of the spine.
(4) Pronated foot.

Of course these are, in practically all cases, merely expressions of the same underlying muscular weakness and the position is chosen which requires the least muscular effort for its maintenance; this peculiar attitude apparently represents the position of ligamentous support as contrasted with the erect position due to the good muscular balance and proper strength of the muscles.

The treatment should be both local and general. Local treatment should include exercises and, temporarily, support by a brace if necessary. General treatment should consist in an attempt to reach and correct the essential cause of the muscular weakness.

Local Treatment. — The routine treatment generally ordered for these cases consists of exercises prescribed to develop the faulty muscles. In extreme cases and where the muscles are unable to maintain a better position after a little exercise, temporary support is advisable in connection with the exercise. The ordinary apparatus used is a rigid waist-band for the posterior half of the body attached to two tempered steel uprights which hold the shoulders back by axillary straps at the top. In addition to the general developmental exercises some of the special exercises are as follows: Backward head bending; backward arm flinging; arch flexions backward; trunk twisting and similar exercises addressed to the extensor muscles of the spine and to the scapular muscles. Abdominal exercises are given for the weak and flaccid abdominal muscles. The scoliosis requires attention by special exercises, usually unilateral, to develop the muscles on the convex side of the lateral curve. The pronated foot or weak ankle demands a set of exercises devoted especially to the development of the tibialis posticus, the flexor longus hallucis, the short flexors of the foot and the adductors of the fore foot. Such exercises consist in rising on tiptoe and separating the heels when standing on tiptoe and sinking when in this position, walking with the feet in the position of congenital club-foot, that is, with the soles facing each other, and similar exercises. The exercises in general should be prescribed with the greatest

care and watched most carefully. They should be done once or twice a day and be followed by a period of rest. The period of treatment is likely to continue over months at least and any cessation of it before the muscles are properly strengthened is likely to be followed by a return of the faulty attitude.

General Treatment. — In my own experience, however, the general treatment of these cases has seemed to me almost as important as the local. As a rule the children of this class that I have seen have been obviously overworked and too great demands have been made upon their muscular system, whatever one may say of their nervous system. The life of an active American child living in the city in the upper classes is, as a rule, one of incessant activity. Only too often the noonday nap is discontinued at an early age and after that from early morning until evening a continuous demand is made upon both muscle and brain. This demand is obviously well met by children of strong and perhaps average muscular development, but for growing children not of average strength with possibly a highly developed nervous system, the demand is too severe and the muscular system apparently from overfatigue fails to hold the trunk in proper position. All sorts of contributary causes come in to effect this and to cause muscular weakness, but no one of the series of cases of which I have spoken has had its origin in severe illness. Where I have asked for a written account of the child's daily routine I have found there, it seemed to me, sufficient explanation of the muscular debility in a child of less than the average muscular strength.

The parents are generally very hard to convince that this is the fact and particularly resent the use of the very legitimate word, overwork. They almost invariably claim that the child's health is constantly watched and that he or she is not allowed to get tired. Nothing less than the detailed account of the daily routine is of any value, when the surgeon may judge for himself. Not only must the daily school routine be followed, but music lessons, dancing lessons, drawing and similar demands fill up the rest of the day, in the intervals of which the overworked child is encouraged to take exercise and to play out of doors which, in some cases, is equally contributary to the undesirable result. The following will serve as examples of the state of affairs just spoken of:

Case I. A healthy girl, six years old, a child of muscular development rather below the average, was brought to me for well-marked pronated foot. She had had no pain but got very tired in the feet. Her abdomen was very prominent and her shoulders drooped forward; she had a slight lateral deviation of the spine; she had never had any severe illness and was considered by the parents perfectly strong. Her pronated feet were corrected by plates, and exercises and massage were ordered for the faulty attitude. She improved rapidly at first, but after a while the exercises ceased to improve her position in standing and inquiry as to her routine was made. Her day was as follows:

She got up at 7, had breakfast at 8, went to school at 9, came home at 12.30 and had her dinner at 1.30. She then played out of doors till 4.30 and then played in the house till supper at 5.30; she went to bed at 7. During this time the mother told me she was practically never quiet unless she was being read to, when she sat still. Here was a day reasonable enough at first glance, but one of unceasing activity and calling for muscular strength for twelve continuous hours.

An hour's rest in the horizontal position was insisted upon early in the afternoon, when the exercises again caused improvement and the progress has since been favorable.

Case II. A boy eight years old, of apparently average muscular development, had for some months been stooping and his abdomen was so prominent that his family noticed it. He stood with some slight lateral deviation of the spine, but he had no pronated feet. His routine was as follows:

Wakes at 6.30, gets up at 6.45, breakfast at 7.45. Walks or rides on his bicycle to school, a mile away. Gets home at 2.30, and has had no appetite for dinner. Plays out of the house or in it till 5 then reads or draws till supper at 6; draws again till 7.30, when he goes to bed. Here was a day of thirteen hours of continuous activity. As an adjunct to treatment by massage and exercise an hour's rest was ordered and he left school at 12 instead of 2. Within ten days he was noticed by his family to be standing much better, his lateral deviation has improved and he stands in an improved position.

Case III. This is an example of another type of case where even a modified day's routine proved too much for the individual boy. A boy, five years old at that time, was under my care ten years ago for faulty attitude. His general condition was so poor that a brace was applied and rest for three or four hours daily was insisted upon. This was followed by exercises and he made excellent progress. The brace was given up and I lost sight of him. This year he was brought to me again standing badly and looking thin and anemic; he had round shoulders, his abdomen was prominent, and he had a slight scoliosis, but did not have pronated foot. The parents had continued the daily rest and some exercises, but the routine, modified as it was, apparently made too great demand on the boy in his present condition. His daily routine was again amended by my suggestion and the exercises were increased with the most gratifying results. There was rapid gain in flesh and color and marked improvement in the faulty attitude. The table shows the changes made:

	Former plan.	Modified plan.
Getting up	7	9
Breakfast	7.30	9.30
School	8.30	9.30
Dinner	1.30	1
Rest	30 min.	30 min.
Play	2.30 to 5	2 to 4.30
Rest	5 to 6.30	4.30 to 7
Supper	6.30 to 7	7
Bed	8	7.30

These examples of the daily routine that occupies the time of these children are not, I fancy, exceptional and they serve only to illustrate what the ordinary children of that class are expected to do. But for certain children that is obviously overwork and overwork which is paid for by nervousness, anemia, muscular debility and resulting faulty attitude.

Round shoulders then should not necessarily be regarded as a trick which certain children have acquired and the view is often incorrect that if they will only make the effort they can stand and sit straight. It is better regarded as one expression of a condition of muscular weakness which often the children are unable to correct for any length of time on account of poor development of certain muscles.

In addition to the local exercises the general condition should be rendered as good as possible in every way and daily overwork should be avoided.

Chicago Hospital for Consumption. — Mr. Otto Young, whose son recently died of tuberculosis, is building in Chicago a hospital for tuberculous patients at an estimated cost of $65,000. It will accommodate 75 patients and will be provided with every device for the treatment of the disease by modern methods. — *Philadelphia Medical Journal.*

TWO CASES OF CLAUSTROPHOBIA.

BY ALBERT N. BLODGETT, M.D., BOSTON.

CASE I. The patient is a man, age thirty-one years, of exemplary habits, who has always been well, with exception of occasional rare attacks of the nature of indigestion, and one well-marked onset of malaria some years ago. He is of unusual intelligence, well educated, and occupies an important and responsible professional position, requiring ability and a high degree of skill, the duties of which he performs with exceptional fidelity and success. Neither in his personal history or that of any member of his family is there any record of nervous disease, with the exception that some months ago, one brother suffered a cerebral hemorrhage with resulting hemiplegia, from which he is now slowly recovering. Syphilis and tuberculosis may be absolutely excluded. The patient formerly suffered from severe ocular symptoms, which have been entirely relieved by glasses correcting a marked degree of astigmatism.

Mr. L. first consulted me on account of peculiar "turns" which would occur without known cause, at any time of the day, never when asleep, and consisted, in outline, of a sensation of indefinable distress, apprehension, discomfort in the epigastrium, giddiness and a feeling of uncertainty in walking or standing. Examination revealed no adequate cause for the symptoms, and it was thought that they probably proceeded from indigestion; for which out-of-door exercise and a simple stomachic were prescribed. This was followed by relief from some of the symptoms, but the main trouble was not influenced by treatment. This slowly increased in severity, and the feelings of apprehension and giddiness increased in intensity, until on the occasion of his graduation from college, when standing with his fellows to receive his degree, he had an attack of unusually severe character and fell to the floor unconscious. He soon rallied and in an hour felt as well as ever. From this time the disease has steadily progressed, and its symptoms have become more pronounced, until a typical picture of the features of true claustrophobia is now present. The patient cannot under any circumstances attend church, cannot go to a party, theatre, assembly of any kind, nor even be in an ordinary group of persons without a most distressing sensation of apprehension and anxiety, for which he can give no reason, but which is so overpowering that he is at once obliged to seek the open air, or at least freedom from the crowd, when he experiences immediate and complete relief. On several occasions recently when this was not possible he has fallen to the floor and lost consciousness. He presents none of the symptoms of epilepsy, has no aura, never utters any cry, never bites the tongue, vomits, nor urinates, never has subsequent delirium or convulsion, and apparently suffers no mental detriment from the attacks, except the momentary nervousness consequent upon the feeling that he is attracting unenviable attention. No lesion of heart, lungs, arteries or other complication has ever been detected, although several careful examinations have been made. Appetite and sleep are normal, and the patient in every other respect is in perfect health. Hysteria may be safely ruled out, as the patient is of rather a phlegmatic temperament, and presents no stigmata of this condition, unless his astigmatic aberration should be so considered. He is of equable and amiable disposition, and is not worried by his infirmity, but now naturally avoids crowded assemblages from fear of attracting attention. He is active in athletic sports, and enjoys life, is jolly and shows no inclination to melancholy. There seems no doubt that the condition is a typical claustrophobia.

CASE II. H. B., age fifty-nine years, unmarried. Has always been well and able to carry on his business as messenger for a commercial house, except as hereafter noted. His work is not arduous, and keeps him most of the time in the open air. Mr. B. consulted me about twelve years ago on account of an old irreducible inguinal hernia, which has existed for many years, and had caused him no trouble or inconvenience until that time, when signs of incarceration had appeared. He was admitted to the Massachusetts General Hospital, where with palliative treatment the signs of obstruction disappeared, and he has had no recurrence. There is no history of tuberculosis or syphilis. Gout and rheumatism may also be excluded. Insanity does not appear in the history of his family. Mr. B. has always been "nervous" in the ordinary sense of the word, but has carried on his business successfully for many years.

About ten years ago, Mr. B. began to exhibit symptoms of a character not before observed. He became restless, could not remain quiet but wished to be continually moving about; soon afterward he became apprehensive for his health, fearing a recurrence of the strangulation, of which there had been no signs; and at length imagined himself threatened with every disease which he might hear mentioned. This condition was associated with a mild degree of melancholia, which rendered him at times morose. During the past five years he has developed a fear of inclosed spaces, which from simple restlessness has now reached such a degree of distress that he can hardly be persuaded to remain indoors at all. He enters his house at meal times, eats with greedy haste and rushes out again as quickly as possible. If the meal be not ready when he arrives at his home, he cannot be persuaded to remain, but sallies forth for a time, when he returns to eat hastily and again escape from the house. At times his distress it so great that he cannot eat, and rushes out of doors without tasting food. He cannot attend church, cannot call on his friends, nor entertain at his own home, nor can he without the greatest effort restrain his terror when entering the business houses which his duties oblige him to visit. He walks uselessly many miles every day in order to escape entering a house, or being in a crowd. His sleep is disturbed, his appetite variable, and his temperament has become irritable and capricious. He has lost ten pounds in weight within a year, for no other objective reason than constant fear and worry. He has become somewhat emotional and cries easily if harshly addressed, or if opposed. His appearance is somewhat "slouchy," which is, however, said to have been his condition before the present illness. His countenance has a somewhat blank aspect, reminding one of the *facies* of general paralysis, but he exhibits none of the more characteristic symptoms of that disease. There are no delusions of grandeur, no interference with motion, no hallucinations, no ocular disturbances, tremor or other signs of that disease. He occasionally suffers from temporary disturbances of digestion which quickly yield to simple treatment. Remedies addressed to his mental condition have been quite with-

out effect, and his condition in this respect seems to be slowly but steadily becoming worse. He is melancholy, and at times very despondent, wishes himself dead, etc.; but has betrayed no tendency toward self-destruction or other violence. He describes his affection as a distress which he does not understand, and is absolutely unable to control by any exertion of the will. In this case the actual symptoms are doubtless exaggerated by marked hysteria. It should be added that in this case there is distinct tachycardia, with at times a soft blowing mitral systolic murmur. No other morbid signs of any physical lesion have been observed on repeated examination.

These cases are recorded on account of their infrequency, and the feeling that this class of diseases is not sufficiently understood. When met, the malady is often wrongly considered as hysteria, or may be classed in the ranks of obscure mental or epileptic diseases. This is evidently a great mistake, and it is hoped that further study and the reporting of cases may clear up the uncertainty at present prevailing in this domain of disease, and enable us to know, if not to relieve, a condition most distressing to the patient and to his surroundings.

Professor Westphal, in an exhaustive article upon the allied condition of agoraphobia,[1] alludes to the mental state in that disease, which will fully apply to the condition in claustrophobia. He says: "All patients without exception positively affirm that they can give absolutely no reason for the distress which overwhelms them. It appears without warning, of itself, a sudden dreadful *something*." He adds: "I have in vain endeavored to obtain a more definite explanation of the psychological processes associated with an attack, but my patients — some of them very intelligent — can only relate the external circumstances under which the morbid condition arises and without exception can only say that all at once the distress and the thought associated with it are present with them, completely without their psychological volition." The process is evidently purely cerebral (psychical), and has quite as little analogy with *normal* psychical processes, and is as little to be comprehended through such analogy as is the case in other pathological sensations, effects, presentiments and impulses. From this group, which in its entirety represents the greater part of the domain of the so-called mental diseases, the condition of agoraphobia (and claustrophobia?) differentiates itself principally through the fact that the appearance of the pathological *effect* is connected essentially with certain external conditions or surroundings; circumstances between which and the effect produced there would seem to be absolutely no possible connection. In addition to this, there is wanting any indication of a real condition of mental disease.

Professor Benedikt[2] has described a case somewhat similar to that noted by Professor Westphal, in which he speaks of giddiness as the principal symptom, which leads Westphal to consider the condition to have been something different from that noted in the cases here quoted. Without more definite particulars it is not easy to decide on the correctness of his claim, but from the accessible data it would seem that there is a lack of similarity in the conditions which leads me to exclude it from present consideration.

Dr. B. Ball[3] has reported a case in which the following were some of the essential features: During the night the patient was seized with terror at the idea of being within a narrow space. Whenever he found himself in a room, he attempted to keep the doors and windows open. He insisted that the windows of his sleeping-room should remain open. He would get up several times in the night to see if his orders had been obeyed. At length, seized with an irresistible inquietude, he would rise in the middle of the night and wander in the streets until daylight. Questioned upon his sensations he stated that he experienced an agony of sensation of constriction like that felt in going through a passage more and more narrow, even to a point where he could neither advance nor recede. It was at this moment when he found himself in a position so intolerable that, struck with extreme terror, he went out of the house.

Meschede[4] reports the case of a student, twenty years old, who experienced vertigo and dyspnea every time he entered a small chamber or narrow place. He was soon obliged to quit his studies and live with a farmer. He could not sleep in a chamber, but camped at night in the fields or woods; and it was only during the most rigorous part of the winter that he consented to sleep in a large chamber, and on condition that the doors and windows be left open. Meschede considers this a particular kind of delirium which ought to be placed at the side of agoraphobia, for in both conditions the patient is unable to appreciate the dimensions of space.

Raggi[5] narrates the case of an artist who was painting in the company of his friends, and receiving their commendation. All at once he lost his presence of mind, and with the appearance of a man ruled by a tyrannical preoccupation he directed his steps toward the door, which was locked. He could not open it; he ran here and there, as if to escape some great danger. Perceiving a window he opened it, reaching the roof of a neighboring house, and thus from house to house until he reached the wall of a garden, and so the ground. On reaching this he at once became tranquil as before.

In the *Lancet*, February 26, 1898, is an article by Dr. R. Jones upon "Agoraphobia," an analogous nervous disorder in which the symptoms are exactly the opposite of those exhibited by the patients who are the subject of this paper. His conclusions have an equally valuable bearing upon the condition of claustrophobia. In relation to the pathology of the disease he says: "there seems to be a periodicity about this condition and it may (as Nieden has endeavored to show in similar cases) be epileptic in character, as the patient occasionally wets the bed. Nieden describes paroxysms of this sensation as being accompanied by considerable concentric narrowing of the field of vision both for white and colors. This he found to be bilateral and his interpretation suggested that it may have been of cortical origin, and caused by vasomotor spasm of the arteries supplying the visual area of the cuneus. He seems to be supported in the vascular view by the fact that in bilateral (double) hemianopia from disease (spasm?) of the vessels, a very small central field of vision is often left, due probably to the half visual centres just perceiving visual impressions. In some cases due to temporary spasm of the vessels, and not to permanent destruction of the visual cortex, this central remaining part of the field of vision is stated to

[1] Archiv. für Psych. und Nervenkrank., Band 3, p. 138, et seq.
[2] Allg. Wiener med. Ztg., 1870, No. 40.
[3] Annales Medico-Psychologique, November, 1879.
[4] British Medical Journal, vol. i, 1879.
[5] Gazette des Hôpitaux, 1878.

be correspondingly brighter, although usually there is much diminished acuity."

Further on, Dr. Jones adds: "Sir Thomas Grainger Stewart writing to me on November 11, 1897, stated that he referred to this condition ten or twelve years ago in relation to giddiness, and he then regarded agoraphobia as co-related with cliff or tower giddiness, the patient having somehow learnt to depend for his special equilibration upon visual impressions of lateral objects, and the absence of such impressions produces the symptoms." Westphal in 1872 described this condition and he characterized it as a neurosis allied to epileptic vertigo. C. W. Suckling[6] has published a valuable contribution to this subject under the title "Agoraphobia and Allied Morbid Fears."

In the *Boston Medical and Surgical Journal*, Vol. CXVIII, p. 407, I reported a case of agoraphobia in which the symptoms, though of the same general character, were the exact reverse in expression of those exhibited in the present case. In that patient the features were briefly: a man over forty years of age, who had been totally blind since early childhood, having lost his sight, from some cause to him unknown, while crossing the Atlantic. He had preserved absolutely no visual impressions of external objects, with the single exception of an indistinct remembrance of the waves seen from the ship on which he was travelling. In that patient the nervous symptoms appeared long afterward, and progressively increased in intensity until he could hardly be induced to leave his room; and to pass from his office to his house only across the street caused him inexpressible agony. He finally became quite unable to go out of doors from this cause, and the account of his sufferings is very touching. He died at length of some obscure disease of pulmonary character, entirely unconnected with the nervous phenomena of which he had so bitterly complained. He never at any time showed the signs of mental aberration or of dementia, and was in no way allied to the so-called "degenerates," unless the existence of his double infirmities should be reckoned sufficient reason for such a classification, which I think quite unjustifiable in this case. Whether visual impressions play any part in the pathology of the cases of claustrophobia which furnish the basis of the present communication, I do not undertake to decide. In the consideration of the symptoms it would seem quite reasonable to suppose that if the patient could not *see*[7] the persons surrounding him, he would not suffer from the apprehension associated with a crowd of people. On the other hand, the patient who could *not* see, suffered acutely from the impression of illimitable expanse, although the element of vision was totally absent as a subjective factor. Dr. Jones states that "as to the pathology of impellant ideas, the presumption that irregular stimulation of isolated cortical centres should cause motor instability on the one hand, and vertiginous feelings (disturbed feelings and emotions — corresponding to the subjective aspect) on the other, would seem to be as favorable a hypothesis as can be advanced according to our present knowledge." This is as much as to imply that the various impellant ideas are due to a disturbance of *psychical co-ordination*.

It would seem to me that our knowledge of these obscure conditions of the nervous system is still very imperfect, and it is manifestly neither right nor warrantable to roughly classify the subjects of these and similar infirmities as either hysterical or insane, as is sometimes done, through the appellation "fixed ideas," "subjective hallucinations," or other terms adequately indefinite and meaningless, which only veil our ignorance of the real pathology or the actual seat of the disease. There is apparently as little connection between agoraphobia, claustrophobia, etc., and the true insanities, as there is between writer's cramp and tetanus.

M. Ball formulates the following conclusions:

(1) There exists a special form of delirium characterized by the fear of closed spaces.

(2) It acts like a true psychosis, and not as a simple sensorial trouble, since the patient has knowledge of his delirium.

The question suggests itself: May not these various forms of different functional psychical disturbances constitute the *mental equivalent* of the various *physical* or *motor* functional neuroses, such as writer's cramp, piano-player's spasm, telegrapher's cramp and other forms of professional disability or occupation-neurosis, which are evidently also due to some disturbance of the nervous system, the result of which is a greater or less degree of *motor inco-ordination*, but the pathology of which is equally obscure?

[6] American Journal of Medical Sciences, vol. xcix, p. 476.

[7] Upon questioning one of the patients, he states that he *thinks* he would experience the distress if he felt that he were in a closed or crowded place even if he could not *see* the persons present or the size of the apartment.

ON THE DISSEMINATION OF THE TUBERCLE BACILLUS IN COUGHING.[1]

BY J. J. CURRY, M.D., BOSTON.

C. FLÜGGE recently reported in the *Deutsche Medicinische Wochenschrift* on his investigations as to the manner in which tuberculosis is spread. He disagrees with the generally accepted theory that the spread of tuberculosis is due mainly to the inhalation of dried sputum dust. He says: "It is not at all proven that the inhalation of dried sputum dust can produce tuberculosis in healthy man. If there is infection in healthy man this can be produced either by contact or inhalation, not so much by dried dust as by sputum which is spread in the air in finest drops in coughing."

According to Cornet, the real danger of infection is the sputum dried on the floor or in the handkerchief. This sputum dust remains dangerous for months. The experiments of Cornet are well known. Under Koch's direction he collected dust from the floor, walls and furniture in various hospitals, prisons, asylums and private rooms which had been occupied by phthisical patients. He determined the presence of living virulent tubercle bacilli by inoculating this dust into animals. Out of 118 dust samples from the hospital wards and rooms of phthisical patients 40 produced tuberculosis in the animals inoculated. He obtained virulent bacilli from dust from 15 out of 21 medical wards. In one case in private practice he found the dust in a patient's room infective six weeks after the death of the individual. There have been many other observers who have confirmed this work of Cornet. And to-day it is the opinion of investigators and of physicians generally that the chief factor in the dis-

[1] Read at a meeting of the Clinical Section of the Suffolk District Medical Society, May 18, 1898.

semination of tuberculosis is the inhalation of dried tuberculous sputa as dust, mixed with air.

In the short time allowed it would be impossible to consider Flügge's article in detail. The main points in it were the following:

(1) That it is not proven that dried sputum dust can produce tuberculosis by inhalation in healthy man. Flügge thinks that the cases supposed to be infected by inhalation of dust could be infected either by contact or by the inhalation of these fine droplets thrown out in coughing which, he says, float in the air for some time. He calls attention to the fact that on animals the attempts to produce tuberculosis by making them inhale dried sputum dust was seldom successful.

(2) That in coughing phthisical patients throw off fine fluid drops which contain tubercle bacilli. These drops, not visible to the naked eye, according to Flügge, are carried by very slow currents of air and remain floating for some time. These he considers the real source of infection, and to this condition rather than to the dried sputum dust he ascribes the dissemination of the tubercle bacillus. In this connection he compares the experimental work with moist sputa and dried sputa. He calls attention to the fact that experiments made by spraying tuberculous sputa in an apartment containing experimental animals invariably led to their infection, whereas the experiments with dried sputum dust, as noted before, were negative.

Flügge's work in brief was as follows:

(1) He found by spraying tuberculous material that fine drops not visible to the naked eye and capable of being held in the air for a considerable length of time contained tubercle bacilli.

(2) His assistant, Laschtschenko, found that such fine drops containing bacteria were formed in coughing, sneezing and loud talking. He proved this by mixing the bacillus prodigiosus with his mouth fluid. He set up agar plates in various places in the room, some near the ceiling. By this means he found that the bacilli were transmitted in coughing to a distance of ten metres. Then he made patients cough in a large glass box. This box was protected against the accidental flying-up of dried sputa by having the patient wear sterilized clothes. He placed bowls of water in various parts of the box, and these were found afterwards to contain tubercle bacilli. He exposed glass plates from one-half to one metre distant from a patient's face and had the patient cough against them. These plates he stained for tubercle bacilli. Oftentimes he could find no bacilli, but in hard-coughing patients early in the morning he obtained numerous bacilli and in *all* such cases tubercle bacilli were found in the mouth fluid.

Flügge concludes "that coughing phthisical persons can contaminate the air around them with these flying drops, which can cause tuberculosis in others. He says that the spread of tuberculosis in this way is possible. The question is, How great the danger? Some tuberculous patients cough with closed lips and do not bring up much. Others cough strongly and with open mouth. One can see the droplets and the mouth fluid contains tubercle bacilli. This is the class that is dangerous. He says, "There is no danger in the first class nor even in the second class if the patient holds the handkerchief against the mouth while coughing. The danger is not so great as would seem at first glance, as the avoidance of hard coughing and the use of the handkerchief before the mouth prevents the drops from going into the air." He makes suggestions for further work:

First, that on numerous patients the experiments of catching drops from coughing patients be made after the method used by Laschtschenko, namely, suspension of glass plates in front of patients, and these examined by staining methods. These observations to be made at various times of the day and the plates held at various distances. Second, examination of mouth fluid of the patients, as this, the mouth fluid, is better adapted to the formation of fine drops than the tough sputa. He also suggests investigation as to the kind of cough and other circumstances favorable to the spread of these drops.

While at the Hygeia Sanitarium, Citronelle, Ala., this past winter, at the suggestion of Prof. Edwin Kleba, I carried out Flügge's suggestions in the examination of twelve cases. All of the cases were of pulmonary tuberculosis and the sputum in each case contained tubercle bacilli. The mouth fluid was examined at various times of day, also glass plates suspended before patients at distances from one to three feet. The following were the results: Examination of mouth fluid showed that in nine out of the twelve cases tubercle bacilli were found at some time during the day. The examination was by staining method. The bacilli occurred usually in very small numbers, though in three of the cases many bacilli were found at nearly every examination. Examination was made in the morning, at noon and at night. In the early morning the bacilli were most plentiful. In the other six cases only a few tubercle bacilli were found and these generally in the early morning, though after a coughing spell at any time of day they were usually found in small numbers. In one case of a patient who had considerable expectoration and many tubercle bacilli in the sputum, only one tubercle bacillus was found after over an hour's careful search. In another case only three bacilli were found after the same length of time spent in examining the specimen. In three of these six cases it was only after a long search that tubercle bacilli were found and in all the cases I often would not find any. In the three cases in which no tubercle bacilli were found in the mouth fluid all had bacilli in small numbers in their sputa. On plate examination one-half of the cases showed negative results. It is worthy of note that *all* these cases had a low cough and kept the lips closed during coughing. Of the others, six positive cases, every one had a loud cough and kept the mouth open during cough. In the examination of these plates two kinds of drops were noted. One class, fine drops, some of them found with difficulty on stained slides and containing chiefly mouth fluid. Others, larger drops, from one to five millimetres in diameter, which apparently came from the trachea. These latter presented microscopically the same appearances as a small drop of sputa. In these drops the bacilli were most frequently contained; and in these also the bacilli occurred in the greatest numbers. The small drops only occasionally contained tubercle bacilli, and then usually in very small numbers. In one case as many as twenty-seven and twenty-eight tubercle bacilli were found in the larger drops.

Of course, this is a very small number of cases, but the results correspond to what we would expect to find. In the hard, open-mouth cough large-sized drops are thrown from the trachea up against the palate

and then out of the mouth. We would hardly expect to find large numbers of tubercle bacilli in the mouth fluid. The bacilli usually do not separate in any numbers from the sputum passing through the mouth, and the flow of saliva, drinking, swallowing, etc., helps to keep the mouth clear. In the experiment with the prodigiosus we do not have by any means a similar condition to that which exists in the mouth fluid of phthisical persons. In the first place in phthisical patients tubercle bacilli occur only in small numbers. In this experiment with the prodigiosus we have enormous numbers of bacilli. Every little droplet contains them. The experiment is an interesting one and explains many of the cases of transmission of such acute diseases as diphtheria, tonsillitis, etc., but in the transmission of the tubercle bacillus coughing does not seem to be such an important factor.

In regard to Flügge's theory that it is by these small drops expelled in coughing that the tubercle bacilli are disseminated; there is no doubt that this is not only possible but even probable, but there is reason to believe that he has greatly exaggerated the danger. These small drops do not all contain bacilli; only a comparatively small number do, and such small droplets readily become dry. The question of how frequently this condition may cause inhalation tuberculosis is a hard one to determine. There appears a danger that does exist, not mentioned by Flügge. This is, that these larger and smaller drops very soon become dried and act the same as so much dried infectious sputa. For this reason it is important and demands attention. That dried sputum dust can infect by inhalation has recently been demonstrated by Cornet. Cornet on March 16, 1898, before the Berlin Medical Society, reported the result of his most recent work. Cornet's first attempts at producing infection in animals by blowing dried sputum dust were failures. He attributes his former failures to his faulty and artificial methods. In his later work he tried again under natural conditions, and was successful. He took an old carpet infected with tuberculous sputum dust and shook it in a room. Two days later he placed 48 guinea-pigs in this room. Out of the 48 animals, 46 of the pigs became infected with tuberculosis. They showed extensive lesions in the lungs and also in the abdominal organs.

Clinical Department.

POISONING FROM HEADACHE POWDERS.[1]

BY ROBERT W. GREENLEAF, M.D., BOSTON.

THE following case is worthy of note as it emphasizes the danger incurred by the laity when taking medicine on other than qualified medical advice.

The patient, Mrs. M. B., forty-eight years of age, came to the clinic of Dr. Frederick Coggeshall at the Boston Dispensary on April 12, 1898. Her symptoms appeared so urgent that immediate death was feared. I report the case through the courtesy of Dr. Coggeshall, who had called me in consultation and had placed her later care in my hands.

It seems that Mrs. B. had left the Convalescent Home of the Boston City Hospital on the preceding day and that, owing to various anxieties on reaching home, had been taken with a headache. To relieve this she sent to a neighboring druggist for some medicine. A box of "headache powders" was given her. The powders were warranted as "A positive cure for Sick and Nervous Headache." They were sold under a trade name and no cautions as to their dangerous properties were specified. Each contained three grains of acetanilid and two grains of phenacetin besides a little caffeine. Of these powders she took five during the night, thus giving her fifteen grains of acetanilid and ten grains of phenacetin. She did not sleep, and, though her headache was relieved, she felt so poorly that she came to the Dispensary in the morning for advice. Her exertions in getting there weakened her dangerously and she was assisted at once into the clinic. The symptom which especially attracted our attention was the extreme degree of cyanosis. This was of a peculiar bluish tinge. It was most marked in the fingers and lips and it spread out into surrounding areas in a diffuse fashion. Her pulse was weak but otherwise she did not appear so ill as the degree of cyanosis would lead one to expect. Examination of the heart, lungs and urine did not reveal a sufficient cause for her condition. A few râles from a chronic bronchitis and a weak heart were the only noteworthy signs excepting the cyanosis.

The immediate treatment consisted of rest and aromatic spirits of ammonia. Under these her strength gradually returned.

The diagnosis was established with difficulty, as at first she was too prostrated to give an account of herself and denied having taken any medicine. Indeed not till making a careful eliminative diagnosis with my students some two hours later did we ascertain the cause of her danger. She then told us of her headache and its treatment and the exact data were subsequently confirmed by the druggist of whom the powders were purchased.

A visit to the patient in her home five hours later found her comfortable but still markedly cyanotic. This symptom gradually wore away and disappeared by the following day.

The poisoning was probably due chiefly to the acetanilid, as that drug predominated in the powders and as it is relatively more active than phenacetin. From the cases noted by others one would say that the toxic symptoms of the two drugs were somewhat similar, both causing the peculiar cyanosis noted in our case and usually prostration and lowering of the temperature. There is less tendency to vomiting and excessive perspiration than in antipyrin, the other drug frequently found in "headache powders." When antipyrin was beginning to be used in this vicinity, the writer, then a hospital interne, recalls seeing it used extensively in different diseases,—and in much larger doses than most of us would dare to use it to-day. He has seen dangerous results follow the use of ninety grains given in hourly doses of thirty grains each. Yet in other cases this large dose was safely borne and produced only a considerable lowering of the temperature, profuse sudorisis and prostration.

The toxic dose of antipyrin may thus be stated as approximately ninety grains, that of acetanilid as twenty or more, and of phenacetin as thirty or more. Idiosyncracies and special conditions modify this estimated dose to a greater or less degree. In

[1] Read at a meeting of the Clinical Section of the Suffolk District Medical Society, May 18, 1898.

our case toxic symptoms appeared from a relatively small dose. Her nervous and debilitated condition combined with the fatigue on exertion were also probably factors in so seriously affecting her.

Elimination takes place with therapeutic doses in a few hours. With toxic ones it requires a longer interval. Possibly cyanosis lasts longer than during the actual presence of the drug, as it is considered that changes occur in the blood. It is found that cyanosis persists in toxic cases for from one to four days. Fatal cases are rare. Of thirty-eight cases collected by Hare but three were fatal.

Toxic symptoms may follow the administration of the drug however exhibited provided that it can obtain an entrance to the body. Most of the reported cases of poisoning have occurred where an overdose had been taken internally. Several cases, however, from its external use are on record. As acetanilid is of considerable value for surgical dressings it is important to remember that it is dangerous if it can be absorbed in any quantity. One serious case of poisoning is reported by Dr. Irving R. Snow [2] where the navel of an infant had been dressed with it. Another case is reported by Dr. Richard C. Newton [3] where acetanilid was used as the dressing in the case of a child suffering with extensive burns of the face, arm and leg. In this case twenty to forty grains were used five times in nine days. If employed for two successive days the toxic symptoms came on after the second dressing.

The practical application from these cases is that when we wish to use acetanilid externally we should bear in mind the same caution we have been accustomed to observe regarding cantharides, belladonna, etc., namely, to be cautious in applying it a second time in the same place or on a freshly denuded surface.

As to the treatment of acetanilid or similar poisoning, the important measures theoretically and shown to be of value in recorded cases are rest, recumbency, warmth, stimulation as by aromatic ammonia — also atropia and strychnia. Elimination should be furthered by attention to the skin, bowels and kidneys.

The State Board of Health has recently called attention to the dangers to the community from the ill-advised use, now so common, of acetanilid and allied drugs in "headache powders." [4] The analysis of several proprietary kinds is therein given. Acetanilid appears to be the important ingredient in most of the powders examined.

The case reported this evening is a striking illustration of the wisdom of their caution.

A GOOD EFFECT SPOILED. — "A distinguished physician of the medical establishment of the court, being on one occasion called to an exalted personage, had a notice posted up intimating to all whom it may concern that 'Dr. ——, having been summoned to Balmoral to see Her Majesty, will be unable to lecture to-day.' The effect of this announcement was rather spoiled by the fact that some one, with an inopportune display of loyalty, had written underneath 'God Save the Queen!'" — *The Practitioner.*

[2] Medical Record, May 29, 1897, p. 782.
[3] Loc. cit., March 7, 1896, p. 333.
[4] See Weekly Bulletin, March 12, 1898.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

R. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, Wednesday, May 18, 1898, DR. W. F. WHITNEY in the chair.

DR. CURRY read a paper on

THE DISSEMINATION OF THE TUBERCLE BACILLUS IN COUGHING.[1]

DR. OTIS: Dr. Curry in his review of Flügge's paper and from his own investigations has raised a very important and suggestive question, which his experiments have partially answered. The ubiquitous bacillus seems always to be *en evidence*, and the task of completely eliminating him from the environment of the coughing consumptive appears well-nigh hopeless. At the same time, as Dr. Curry concludes from his experiments, tubercle bacilli do not seem to be very largely disseminated in coughing if the patient uses due precaution, and has trained himself to reduce his coughing to a minimum. Although the risk of disseminating the bacilli in this way exists, yet it does not appear so far to be a very great one, for Hance, in "A Study of the Infectiousness of the Dust in the Adirondack Cottage Sanitarium," proved by the inoculation of guinea-pigs that sixteen out of seventeen cottages in habited by consumptives for as long a period as ten years were free from infectious material, the sputum being properly disposed of.

In the seventeenth cottage the patient has disobeyed instructions as to expectoration. The same negative results were obtained by Heron in the City of London Hospital and by others. Furthermore, Hance found that not one of the twenty to twenty-five attendants at the Adirondack Cottage Sanitarium ever developed tuberculosis; and that no patient who was admitted suffering from pulmonary disease without the bacilli being present ever subsequently developed them. Williams, of the Brompton Hospital, reports the same result; and in the "Free Home for Consumptives" in Dorchester, where there are twenty-eight consumptives in the later stages of the disease, constantly coughing, no case of tuberculosis has arisen among the attendants or nurses. One nurse had pleuritic effusion but entirely recovered. It would seem, then, that the risk of infection from coughing was a small one in comparison with that from the dried sputum. And this being properly disposed of there then appears to be very little evidence that there are many bacilli about in the wards or rooms occupied by consumptive patients.

In this connection I would like to exhibit two sputum cups, one the so-called Dettweiler pocket spit-cup of glass, and the other a modification of this, devised by Dr. S. A. Knapp, of New York, and made of aluminum: these can be used by the patient out of doors and carried in the pocket; or, when the patient is confined to his bed, can be kept under the pillow and used without getting up and thereby incurring the risk of a chill from the exposure. They can be readily cleansed by boiling, and the cover shuts tightly preventing any leakage. When carried about they

[1] See page 363 of the Journal.

are so small and neat that they do not attract attention.

DR. BOWDITCH: I have listened with much pleasure and interest to Dr. Curry's paper. It brings up the possibility, certainly, of the spread of the bacilli by coughing. I have always felt that if the patient was coughing severely he was liable to eject small particles of sputa and have therefore often cautioned patients to hold something before their mouths when doing so, at the same time avoiding as far as possible spreading that spirit of what may be called terrorism of infection among the community, a danger which I think the sweeping, carelessly-made statements of some medical men are apt to bring about.

Dr. Otis has spoken of the experiments of Hance and others in the different sanataria for consumptives in trying to detect the presence of bacilli in the rooms occupied by the patients. Judging by their results it would hardly seem that from coughing alone the number of bacilli ejected in a patient's room could form a large factor of danger inasmuch as no bacilli could be found in the dust of rooms where the patients had been careful merely in the disposal of the sputa, regardless of coughing. In regard to the sputa cups used at Dettweiler's Sanitarium and by Dr. Knapp, as shown by Dr. Otis, I confess I can see no advantage in them over the Japanese paper handkerchiefs used at the Sharon Sanitarium. When walking on the grounds the patient expectorates into the paper, rolls it up and places it an ordinary rubber tobacco pouch, the contents of which are burned later and the pouch cleaned. It is a matter of taste after all, but the latter method is pleasanter to me.

I am very glad Dr. Curry has brought up this subject for it must be met, but I feel very strongly that we must be careful in our statements to the laity upon such subjects, lest we stir up the spirit of terrorism to which I have already alluded. Only the other day a gentleman who had read somewhere a statement regarding the subject of Dr. Curry's paper, asked me if I thought his daughter was in danger from a patient's coughing in the house next his in the country, inasmuch as he read something which had led him to this belief in a State Board of Health Report lately. I told him I thought the danger was practically *nil*. I have seen too many instances in the last two or three years of absolute fright on this subject among the laity, not to make me very cautious in expressing my views to them when trying to inculcate strict cleanliness in the care of the patient's surroundings.

DR. GREENLEAF read a paper on

POISONING FROM HEADACHE POWDERS.[2]

DR. KNAPP: I remember two or three years ago that Dr. Wadsworth asked me to see a young woman at the hospital, who was suffering from an intra-orbital growth which probably extended into the cranial cavity. Her headaches were very intense and when she came to the eye clinic she presented a very marked cyanosis. Her whole body was exceedingly blue. When we came to question her we found she had been buying headache powders and taking them on her own responsibility several times a day for several weeks. The special name of the powders I do not now recall and I do not think we ever had them analyzed to know exactly what they contained, but they probably contained some of the coal tar derivatives. One curious feature about her cyanosis was that in spite of its being extremely marked, it seemed to interfere comparatively little with her getting about. She walked about very well, the pulse was in fairly good condition, she was not very much troubled for breath. We took her into the house and stopped the headache powders. The cyanosis gradually died away; further investigation of her case led us to put her on anti-syphilitic remedies which gave considerable relief. On the other hand, I have had occasion only this afternoon to look up certain cases of cerebral tumor where the coal tar derivatives were used in the treatment. One case took somewhere in the neighborhood of 20,000 grains of phenacetin in the course of a year in doses of thirty to ninety grains a day without the slightest signs of any disturbance, and his heart was in sufficiently good condition at the end of that time for him to have an operation performed upon the brain from which he made a satisfactory operative recovery, although it was merely a palliative operation. I saw yesterday the brain from another tumor case which had taken antipyrin at the rate of about 20,000 grains in a year, in similar doses, which afforded relief to the headache and yet did not give rise to any circulatory disturbance at all or any indications of poisoning. She also went through a palliative operation some three years ago in a perfectly satisfactory manner, and since the operation, which relieved her headache very materially, she continued the use of antipyrin in smaller and less frequent doses, the operation not having completely relieved her headaches.

[2] See page 370 of the Journal.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-FOURTH Annual Meeting held at the New York Academy of Medicine May 26, 27 and 28, 1898.

FIRST DAY. — THURSDAY.

DR. G. H. HAMMOND, of New York, President, in the chair.

RESULTS OBTAINED BY PARTIAL THYROIDECTOMY IN EIGHT CASES OF GRAVES' DISEASE.

DR. J. ARTHUR BOOTH, of New York, read a paper with this title. The following were the results obtained: five were cured, one improved, one unimproved, and one died.

Conclusions: (1) Cases of Graves' disease may be entirely cured by operative measures.

(2) Pathological and clinical evidence is in support of the view that the symptom complex is the expression of a primary neurosis multiplied by a secondary glandular intoxication.

(3) While the ultimate cause of the disease of the gland is still a matter of speculation and a mortality of seven per cent. after operation is reported, we cannot justly recommend it as a routine plan of treatment.

(4) Sudden death may occur in the course of, or shortly after, operation, and has not as yet received a satisfactory explanation.

DR. J. J. PUTNAM, of Boston, said he had reported two cases of thyroidectomy for Graves' disease, with death following in one instance and gradual improvement in the other. Since then he had another case,

which resulted fatally after the removal of the cervical sympathetic.

Dr. William M. Leskinsky, of New York, said he had had two cases operated on during the past year. In one there was considerable improvement in all symptoms. The other died thirty-six hours after the operation.

ACUTE MYXEDEMA (?) WITH TACHYCARDIA, DELIRIUM AND DEATH.

Dr. William Osler, of Baltimore, described the case of a man, age thirty-one, of good family history and good habits, who, from October 1, 1896, to January 1, 1897, increased in weight from 145 to 192 pounds. Except an occasional attack of diarrhea and an increasing irritability there were no other symptoms. On February 5th he went to Florida, and there became excited and delirious and had delusions.

On reaching his home there was slight exophthalmus. The subcutaneous tissues were everywhere infiltrated, brawny and did not pit; the skin was dry, and on the chest was a red papular rash. The pulse was 120 per minute. The thyroid gland could not be felt. The temperature normal. The urine free from albumin and sugar. For the first two weeks he remained in about the same condition. He had attacks of diarrhea, and at times there was blood in the stools. On March 1st he was given thyroid extract. He lost rapidly in weight and became delirious. Albumin and sugar appeared in the urine. He grew progressively weaker and died March 13th. Dr. Osler remarked that myxedema has followed in a considerable number of cases of exophthalmic goitre, and at times certain symptoms of the latter disease have appeared in patients taking the thyroid extract. In this patient there was a rapid increase in the subcutaneous tissue, with a bloated infiltrated appearance of the face, but not the waxy characteristic facies of myxedema. The increase in weight and size was remarkable, so that the patient had to have a completely new outfit of clothing.

Tachycardia, tremor and slight exophthalmus supervened, with mental symptoms. Coincident with the use of the thyroid extract, of which only twenty-five grains were given, he began to lose weight, albumin and sugar appeared in the urine, he became delirious, and died of exhaustion.

Dr. Booth referred to one of his cases (the one in which there was no improvement after thyroidectomy) which presented some of the symptoms mentioned by Dr. Osler.

Dr. Osler thought that in those cases where sudden death follows the operation it is possible we may have a condition of so-called *status lymphaticus*, in which we know that sudden death occurs.

AMYOTROPHIC LATERAL SCLEROSIS WITH BULBAR SYMPTOMS.

Drs. F. X. Dercum and W. C. Spiller, of Philadelphia, reported a case of this disease. The microscopical examination showed degeneration of the lateral columns, involving a greater area than that occupied by the crossed pyramidal tracts, and a slight sclerosis of the posterior columns in the lower cervical and upper thoracic regions. The pyramidal tracts were not degenerated above the pons. The bulbar symptoms were due to degeneration of the motor tracts and not of the motor nuclei. The writers discussed the significance of the degeneration in the posterior columns and showed how the symptoms of amyotrophic lateral sclerosis could exist without degeneration of the pyramidal tracts.

AMYOTROPHIC LATERAL SCLEROSIS

was the title of a paper by Dr. E. D. Fisher, of New York.

He considered amyotrophic lateral sclerosis a disease of a similar character to that of progressive muscular atrophy, chronic poliomyelitis and tabes. All are simply degenerative diseases of the nervous system. Amyotrophic lateral sclerosis is not an entity, and the name in future will probably be abolished. The author presented microscopical sections from a case which was a typical clinical picture of amyotrophic lateral sclerosis, and showed disease of both lateral and posterior columns and the anterior horns.

Dr. Dercum said that the case reported by Dr. Spiller was apparently one of lateral sclerosis, the lateral column symptoms preceding the muscular atrophy. The presence of the bulbar symptoms was probably referable to minute lesions in the border tracts above the nuclei. He was hardly prepared to go as far as Dr. Fisher in regarding tabes as being actually related to the disease which we know as amyotrophic lateral sclerosis.

Dr. Charles K. Mills, of Philadelphia, said there are three distinct sub-types of this disease. In one type the symptoms of so-called primary lateral sclerosis develop early, with contractures and bulbar symptoms later. In the second type we have muscular atrophy in the limbs, and in the third type the special bulbar symptoms develop very early.

Dr. P. C. Knapp, of Boston, believed that while the three types mentioned by Dr. Mills were now recognised, many transitional types were met with which did not fit any one of them. We must assume that there is but one pathological entity.

Dr. H. M. Thomas, of Baltimore, agreed with Dr. Knapp. He thought that amyotrophic lateral sclerosis is a bad name, combining, as it does, a symptom and pathological finding in one term. It would be better to consider these conditions as due to degenerative lesions in the motor tract, which are simply variations of one and the same trouble, sometimes beginning in the upper motor segment, sometimes in the lower, and usually involving both.

SYRINGOMYELIA AND TABES WITH SENSORY DISSOCIATION ON THE TRUNK.

Dr. Hugh T. Patrick, of Chicago, reported a case of syringomyelia showing analgesia of almost the entire trunk, including the arms, with a narrow zone of tactile anesthesia about the middle of the body such as had been recorded by Lachr and the author as occurring in this disease. Two cases of locomotor ataxia that presented almost the same sensory conditions were then described. This sensory dissociation on the trunk was opposed to the rule in tabes, for in this disease the sensory blunting on the trunk was usually a tactile anesthesia with no analgesia whatever or only a comparatively narrow zone in the middle of the anesthetic area where pain sense was lost. One of the cases of tabes, moreover, presented atrophy of one trapezius muscle and deformity of one foot which were almost identical with like conditions in the patient with syringomyelia, and had, besides, suffered

spontaneous gangrene of two toes, a complication much more characteristic of this latter disease than of locomotor ataxia.

SYRINGOMYELIA WITH UNUSUAL SYMPTOMS.

This was the report of a case by Dr. William N. Bullard and Dr. John J. Thomas of Boston.

A boy previously healthy and of fairly healthy antecedents, when three years old became subject to attacks of headache of much severity lasting an hour or more; these were soon accompanied by vomiting and increased in frequency and severity. This condition continued three years, growing gradually worse, and at the end of that time staggering was noticed and a severe double optic neuritis occurred, which soon produced double optic atrophy and nearly total blindness. The headaches, vomiting attacks, and blindness continued much the same for nearly two years, — the remainder of the patient's life. At times the pain and prostration were such that he was in bed for days or weeks at a time, then improved, and was able to be up and about like a healthy child. During this time there was great increase in the general adipose tissue, so that the patient became obese, and to this condition was added later exophthalmos and an appearance suggesting myxedema. These two latter symptoms, however, disappeared after a month or two. During the first part of this time (in March, 1895) there were temporary paresis of both external recti and nystagmus. There were no further changes in the symptoms until about ten months after the blindness began, when there was a sudden attack of paraplegia accompanied by incontinence of urine and feces which became permanent. At the same time there appeared a paralysis of the left face and some weakness of the upper extremities, but these soon disappeared. Bedsores developed but later improved, and the child was in good general condition, although the obesity had somewhat diminished at the time of death, from typhoid fever.

At autopsy there was marked dilatation of the ventricles, including the fourth, and the iter, resulting from the hydrocephalus. The branching cavity in the cord seemed to originate in the gray matter and not to be a diverticulum of the central canal, although at the point of greatest dilatation of the cavity in the lower cervical region the central canal opened into, and became a part of, the general cavity. Above the point of greatest dilatation of the cavity there was an ascending degeneration of the direct cerebellar tract, the tract of Gowers and the posterior columns. Below this point there was marked degeneration of the direct and crossed pyramidal tracts and diffuse atrophy of the posterior columns. There was also well-marked atrophy of the tract of Gowers. At the point of greatest dilatation of the cavity there was extensive degeneration of all the fibres of the white matter of the cord, and marked distortion of the gray matter, in which, however, fairly normal nerve cells were found in moderate numbers. There was diffuse increase of neuroglia fibres in the atrophied tracts and marked neuroglia proliferation about the cavity in the cord.

Dr. P. C. Knapp said that the study of sensory disturbances, especially in tabes, shows that they do not follow any definite course. As a rule, in tabes the analgesia is more extensive than the anesthesia.

Dr. B. Sachs, of New York, thought the view that the well-known sensory symptoms of syringomyelia were almost pathognomonic of that disease could no longer be entertained. He had observed two cases of Pott's paralysis with dissociated sensory symptoms confined to the extremities. In two other cases there was dissociated sensation in the distribution of the trigeminal nerve.

Dr. Patrick, in closing the discussion, said he did not agree with the statement of Dr. Knapp, that in tabes, as a rule, the analgesia was more extensive than the anesthesia. On the trunk tactile anesthesia is more extensive than the analgesia, and appears sooner.

The ordinary dissociation of sensation on the extremities in Pott's disease was not very uncommon.

LANDRY'S PARALYSIS.

This was the report of a case by Drs. Chas. K. Mills and W. G. Spiller, of Philadelphia.

Paralysis developed very rapidly in a man previously healthy, and after one week the man died, completely paralyzed in all the extremities. Sensation was preserved until death. One of the external popliteal nerves examined was found degenerated, and the motor cells of the spinal cord presented the lesions known as central chromatolysis. The writers reviewed the cases published in the literature, and discussed the value of central chromatolysis as indicative of secondary changes within the cell body. They believed that transition forms of acute ascending paralysis occur, which make the diagnosis between Landry's paralysis, polyneuritis and myelitis difficult. Landry's paralysis may be due to myelitis or to neuritis, and it is possible that in some cases no lesions may be found.

Dr. Mills held the view that in these forms of acute toxemia or infectious diseases it was very probable that in many of them the entire peripheral motor neuron — or whatever system is affected — is attacked at the same time.

(To be continued.)

Recent Literature.

Electricity in the Diagnosis and Treatment of Diseases of the Nose, Throat and Ear. By W. Scheppegrell, A.M., M.D., New Orleans. New York: G. P. Putnam's Sons. 1898.

This is a book of four hundred pages, thoroughly covering the ground set forth in the title. The first half includes the general principles of medical electricity, the galvanic and faradic currents, electric lamps, illuminators, electro-cautery, motors, electrolysis, cataphoresis and x-rays. In the second half, different pathological conditions which are best treated, or which may be treated by any of these electrical methods are classified and the treatment described.

The book is carefully compiled, clear and attractive. By not attempting too much the author has succeeded in giving to the profession a supplement to our text-books on diseases of the nose, throat and ear which was much needed. He is to be congratulated in not having burdened his text with an endless number of cuts of instruments, and also in having arranged the quotations from other authors and references to their opinions in such a way that connected description is not lost.

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THE CAUSES OF SUDDEN DEATH.

BICHAT'S famous statement that every kind of sudden death commences by the interruption of circulation and respiration or of the action of the brain (that is, begins in the heart, the lungs or the brain [1]) has long been found inadequate. It has in fact been affirmed and by an author much more modern than Bichat, that sudden death originating in the kidney is of all kinds of sudden death the most frequent.[2] This may be doubted, — at the same time sudden death from renal failure, from so-called uremic poisoning, is a common occurrence. It may well be that the toxic urinary waste elements cause broncho-pulmonary lesions which result in death by asphyxia as often occurs in the bronchial form of uremia; or precipitate a fatal termination by paralyzing the heart as in renal affections with concomitant cardiac lesions; or bring about sudden death by suspending all cerebral action, as is witnessed in the comatose form, — it is none the less true that the death begins with the kidney. Though sudden death does sometimes take place from renal causes, and every general practitioner is cognizant of such cases, yet oftener not being instantaneous the fatality would be tabulated as rapid rather than sudden death, and the physician called to the scene obtains a history and sees symptoms which more or less clearly indicate the disease. This is even the case with sudden death due to lesions of the encephalon. These comparatively seldom come within the province of the medical examiner or coroner, the fatal lesion to be determined and the death entry to be made by him. A meningeal hemorrhage, for instance, may be speedily mortal, but not till one or more hours have elapsed. An apoplexy at the *basis cranii*, bringing about sudden death by inhibition of the cardiac and respiratory centres, is rare. Brouardel very properly takes such cases out of the category of deaths from cerebral causes and tabulates them as sudden death due to lesions of the circulatory apparatus.

A certain number of sudden deaths has been laid to the account of latent meningitis, like the case which Ollivier, of Angers, reports where a laborer was taken suddenly sick during his work, died very soon, and at the autopsy there was found a limited suppurative meningitis. Sudden deaths have been recorded from latent abscess of the cerebrum, from cerebral tumors in the bulb, pons and peduncles, causing spreading congestion and suspending the centres of cardiac innervation, etc. Similar sudden fatalities from paralyzing the cardiac innervation have arisen from insignificant traumatisms. Ivanoff records sudden death in a boy aged fourteen years resulting from a kick in the abdomen given by another boy. At the autopsy nothing was found to explain the death. Brouardel, who cites the case, remarks that experience teaches that violent blows over the epigastrium may determine death by irritation of the solar plexus and consequent reflex arrest of the heart and respiration, or, as others would explain it, by constriction of the arteries of the cerebrum and medulla oblongata. It would seem that the blow over the epigastrium sufficient to cause death need not be a very severe one (Lancisi, Sir Astley Cooper, Maschka). Men have died suddenly in consequence of a kick or blow upon the scrotum, also by a blow over the larynx, the nose, the mouth, or some part of the cranium. A blow upon the cranium may not cause fracture or even great contusion, and the resulting death is generally somewhat tardy being due to intra-cranial hemorrhage. Sudden death due to alcoholism may result from the toxic action of alcohol on the nerve centres, also from the development and culmination of any of the visceral diseases which alcohol engenders, and especially from cardio-vascular and renal scleroses, from fatty myocardium, from meningeal hemorrhage, etc. Sudden deaths from diabetic coma generally have a known antecedent history and seldom become medico-legal cases. It is not always so with the occasional unforeseen fatal accidents of pulmonary or pancreatic hemorrhages; rupture of the spleen after moderate traumatism (seventeen medico-legal cases recorded by Dr. Pellereau [3]); rupture into the peritoneal cavity of hydated cysts of the liver with sudden death in profound collapse; syncopes attending hepatic colic (Charcot), — in one case of hepatic colic recorded by Brouardel, the train of fatal symptoms consequent on irritation of the bile passages by calculi and following a meal awakened suspicions of poisoning and gave rise to an inquest. Cases of rapid death with pain, vomiting, purging and collapse due to ptomaine poisoning and suspected before judicial investigation has been made to be arsenical poisoning are on record; so also of sudden mortal collapse following hemorrhage from a latent ulcer of the stomach. Instances of intestinal ulcers producing sudden death by perforation — complications or sequels of dysentery, typhoid fever, tuberculosis, cancer, etc., — have sometimes come under observation; rapid death with violent symp-

[1] Bichat: Researches on Life and Death, 1809, p. 183.
[2] Brouardel: La mort et la mort subite, 1895, p. 245.
[3] D. Pellereau: Considerations medico-légales sur les ruptures de la rate (cited by Brouardel).

toms following volvulus and other forms of intestinal obstruction has often been witnessed, and such cases have been mistaken for acute poisoning. Instances in which sudden death was caused by emotion (shock) are not unknown. The autopsy either discloses nothing sufficient to account for death, or at the most some congestion of the cerebral meninges, as in a case of Marchal.[4]

Among the lesions of the lungs capable of causing sudden, unexpected death, we must give the first place to pulmonary embolism associated with fractures of the leg, with typhoid fever and originating in thrombosis of some of the large veins, with phthisis pulmonalis, with rheumatic phlebitis, with *phlegmasia alba dolens* and other puerperal conditions, with varicose veins, with latent cancer of the uterus, etc.

Sudden death has frequently resulted from the introduction of air into the veins, as in cases of provoked abortion; this accident has even followed natural delivery.

Cases of sudden death originating in the heart, occasion probably a very large percentage of visits and "views" made by the medical examiner. The usual verdict, "death by heart disease," is unfortunately seldom verified by an autopsy, therefore positive data on this point are not attainable. The majority of the subjects concerning whom the above mortuary record is written by the medical examiner, being advanced in years, are probably victims of fatty degeneration of the myocardium, with or without stenosis of the coronary arteries. There is reason to believe that this malady is often latent, or nearly so, till the moment of death. Aortic regurgitant far oftener than mitral disease is followed by sudden death, but there have generally been definite symptoms and a definite history, so that the sudden death cannot be said to have been an unforeseen and unexpected accident.

It is probable that deaths are continually being entered as due to heart disease where other causes were responsible. According to Lesser's statistics, out of one hundred cases of sudden death, there were sixty-six by cardiac lesions and thirty-four by unknown causes. Of these unknown causes, the autopsy in ten per cent. failed to give any explanation. These figures may fairly well represent the experience of many others. Often the autopsy is performed when decomposition is too far advanced for satisfactory results to be obtained; and, as above intimated, the direct or reflex causes of sudden death may be of too impalpable a nature for detection.

MEDICAL NOTES.

Plague in India. — Plague in India is reported to be increasing, and it is interesting to note that the British Government has lately removed certain restrictions previously placed on travel in the infected districts as impracticable, and causing more inconvenience than was justified by their results.

[4] Marchal: De la mort subite, Paris, 1861, p. 25.

The Government and Yellow Fever. — In answer to an appeal from the Board of Health of Mississippi to the United States Government for aid, Surgeon-General Wyman is reported to have answered that the Government cannot furnish nurses or provisions for sufferers, but can only establish detention camps and maintain a corps of inspectors and physicians.

Extraordinary Case of Maternal Impression. — We have recently published several cases of reputed maternal impressions. A correspondent sends the following as an addition to our list. We are not responsible for its accuracy. A Chinese cook, trying to catch a barn-door fowl for the pot, pursued her to the henhouse, where, having escaped from her pursuer, she was prematurely delivered of an egg. When the egg was hatched the chicken proved to be a "Cochin China." — *New York Medical Journal.*

Casualities in the Soudan Expedition. — In the recent fight at Omdurman there were 4 officers killed, 3 English and 1 native, as well as 23 men in the British regiments and 20 in the native. There were 14 British officers wounded, and 8 native officers. The wounded in the British regiments numbered 99, and in the native regiments 221, so that the total number lost in this battle — in which the enemy lost some 15,000 in killed and wounded — was 389. Lieutenant-Colonel Hoggett, senior medical officer of the expedition, received a bullet wound of the left breast, and 2 men of the corps were wounded, one of them severely, by a bullet in the head. — *Medical News.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, October 12, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 35, scarlet fever 21, measles 15, typhoid fever 26.

Free Hospital for Women. — Through the generosity of Mrs. Dumaresq and Mrs. Arthur W. Foster a ward has been fitted, furnished and endowed at an expense of eighteen thousand dollars ($18,000) to be known as the Jordan Ward.

The Massachusetts Hospital for Consumptives and Tubercular Patients. — This hospital, located in Rutland, Mass., on the Central Massachusetts Railroad, twelve miles from Worcester, about twelve hundred feet above sea-level, was opened October 1, 1898, for the reception of patients. It is built on the pavilion plan and will accommodate two hundred patients. Inasmuch as the primary purpose of the hospital is to arrest the disease, and if possible to extirpate it, only such patients will be admitted as are not too far advanced to admit of reasonable hope of radical improvement. In no sense is the hospital to be considered as a home for the hopelessly sick. Patients who do not improve after a stay in the hospital suf-

ficiently long to test the effect of treatment will be advised not to remain, and their friends will be expected to arrange for their removal to surroundings primarily devoted or better adapted to their comfort. Patients will be admitted only upon applications endorsed by the visiting staff, Drs. Vincent Y. Bowditch and Herbert C. Clapp, who will have supervising charge of their medical treatment and who will decide the duration of their stay in the hospital. The charges for patients will be uniform at the rate of fifty cents per day. No private patients will be received and private rooms will be allowed only for physical reasons. No extra charges will be made and no fees or tips will be allowed to be accepted under any circumstances. The Boston office, No. 181 Tremont Street, will be open for the examination of applicants on Wednesdays and Saturdays from 10 to 12 o'clock only. Any further information will be gladly given by the Superintendent, Dr. Walter J. Marcley, Rutland, Mass.

NEW YORK.

The New Columbia Gymnasium. — The various departments of Columbia University were reopened for the season on October 3d, with an address by President Seth Low. On this day the new gymnasium was thrown open for the first time. The gymnasium itself contains an available floor space of 16,000 square feet, and is, with one exception (that of the University of Wisconsin), the largest in the country. The marble swimming pool, which is in the basement, is semicircular in shape, and is one hundred feet long by fifty feet wide. Its depth ranges from three to nine feet, and the water is lighted from beneath by electric arc lights. The medical director of the gymnasium is the well-known expert, Dr. W. L. Savage.

The Four Years' Course Adopted. — On the occasion of the opening of the University and Bellevue Hospital Medical College, on October 3d, the address to the students was made by Prof. Edward G. Janeway, Dean of the Faculty, who stated that the present senior class will be the last to be graduated after a three years' course, the four years' course having been made obligatory in the consolidated school.

Opening of the Cornell Medical College. — The first session of the new Cornell University Medical College was opened on October 4th, in the building on the grounds of Bellevue Hospital formerly occupied by the Bellevue Hospital Medical College, by addresses by Jacob Gould Schurman, LL.D., President of the University, and Dr. William M. Polk, Dean of the Medical Faculty and Professor of Obstetrics and Gynecology.

Wanted: Brains. — Dr. Burt G. Wilder, Professor of Physiology on the Cornell Staff of Instruction at Ithaca, has recently issued a circular asking prominent men of the country to bequeath their brains to the University. In it he states that while it is easy to procure the brains of criminals and the insane or ignorant, it has hitherto been extremely difficult to obtain those of persons in whom the cerebral development is beyond the average, and that it is highly desirable for the advancement of science that a considerable number of brains of this character should be secured. This request, which has been circulated principally among the students and graduates of Cornell, is accompanied by a blank form of bequest, which, however, contains a clause by which the legacy becomes void if serious objection is made by the relatives of the deceased.

The Wounded at Santiago. — At the first meeting, on October 6th, of the New York Academy of Medicine, after the summer recess, Dr. William Duffield Bell, Surgeon of the Seventy-first Regiment, New York Volunteers, read a paper on "Surgery in the Recent War." In the course of it, in speaking of the Santiago campaign, he said:

"In tents where there was not accommodation for more than one hundred, fully eight hundred patients were treated during the three days of the great battle of San Juan. During the conflict, a constant stream of wounded and injured men kept coming in from the firing line. Many of the wounded walked fully four miles to have their wounds attended to, while numbers had to lie on the ground unattended to for several hours. We had an insufficiency of clothes and blankets, and the injured had to lie in their rain-soaked uniforms. Could it have been possible to keep a complete report of the cases and the nature of the wounds made by the Mauser bullets and the explosives fired from the Springfield rifles of the Spanish volunteers, it would be a most valuable acquisition to the annals of military surgery. I have seen men who were shot through the head with Mauser bullets go back to duty within three days after having been treated, apparently as well as ever. The explosives from the Springfield rifles, fired at either short or long range, were destructive in their effects. The men of the medical department deserve all praise for the fearless manner in which they risked their lives in ministering to the wants of others, both in the hospitals and at the firing line. The Spanish sharpshooters, hidden in trees, never lost an opportunity to shoot at a medical officer. In fact, the Geneva cross on his shoulder was but a target for the bullets of the Spanish sharpshooters."

A Public Bathing Pavilion. — At a meeting of the Board of Estimate and Apportionment held October 6th, an appropriation of $150,000 was allowed to the Commissioner of Parks in Brooklyn and Queens for the construction and equipment of a great bathing-house and pavilion at Coney Island. It is to be built on land belonging to the city at the terminus of the Ocean Boulevard and the bicycle path, and will be ready for occupancy next summer. It will be maintained, under the supervision of the Park Department, on similar lines to those on which the Revere bath and shelters are conducted in Boston, and it is claimed that the institution will be self-supporting. The preliminary plans for the structure propose a large brick building three stories in height, on either side of

which there will be colonnades protected from the sun's rays, where women and children can find comfort during the hot weather. The pavilion will have an ocean front of about six thousand feet, and in the bathing-houses there will be room for over one thousand persons at a time, while the entire structure will accommodate ten thousand.

Suicide of a Young Physician. — Henry E. McDermott, Assistant in Physiological Chemistry in the College of Physicians and Surgeons, New York, recently died in New Haven, from the effects of prussic acid, which he is supposed to have taken with suicidal intent while suffering from mental depression resulting from continued ill-health. He was graduated with high honors from Yale University in 1896 and was a student in the Yale Medical School until last spring, when Prof. R. H. Chittenden invited him to become his assistant in the Medical Department of Columbia University, a very unusual honor for so young a man.

Typhoid among the New York Volunteers. — A despatch from Middletown, Pa., dated October 4th, states that there are no less than four hundred cases of typhoid fever in the 203d Regiment, New York Volunteers. The disease is probably of a comparatively mild type, however, as there seem to have been but few deaths. This is one of the regiments that went from Camp Black, at Hempstead, last month soon after the outbreak of typhoid there, and when they had been at Camp Mead some little time so many cases developed among the men that it was deemed advisable to isolate the regiment in the Concavago Hills, eight miles from the other troops. Disease is said to be abating in the 201st and 202d Regiments, which also contracted typhoid at Camp Black.

Miscellany.

YELLOW FEVER IN THE SOUTH.

Reports from Mississippi and Louisiana show a continued spread of yellow fever. On October 10th it was reported that seventeen counties and twenty towns in Mississippi were infected. An extensive migration has taken place from the infected districts, 25,000 people being reported to have taken flight to northern and western cities or to the woods. Great hardship has been caused to all classes by the total suspension of business in the infected districts.

From the beginning of the epidemic the state of unreasoning panic which it has caused has been out of all proportion to its severity, as the character of the cases has been uniformly mild, the death-rate being reported to be about ten per cent., though larger among the white than the colored population. The character of the disease is so mild, in fact, that the State Board of Health, of Louisiana, in a recent proclamation have termed it "yellowoid fever," and relaxed the quarantine regulations to the extent of allowing all persons from non-quarantined localities to enter quarantined localities, from which, however, they cannot return. All quarantined localities except Franklin and Wilson are permitted to hold communication with New Orleans and adjacent quarantined localities. Ten counties out of sixty-nine in Louisiana have already removed quarantine restrictions.

Surgeon-General Wyman on October 9th, issued the following statement for publication regarding the present epidemic:

"The disease is confined to Mississippi and Louisania and is a recrudescence of the fever from last year. In my opinion it did not come from Cuba and was not admitted by any quarantine. The hospital service has a large corps of officers throughout the infected territory. All trains leaving infected districts are manned by inspectors of the marine-hospital service and through trains are supplied with guards as well. Freight trains are obliged to change their crews so that the same crews may not go from one infected district to another district.

"The disease has appeared so late that it is extremely improbable that it will assume the extent of a great epidemic. After November 1st there may be some new cases, but there will be no new foci."

The following are the statistics of the disease as reported to the Marine-Hospital Service up to October 8th:

				Cases.	Deaths.
Louisiana:	Bowie,	Oct. 6,		1	
	Delogny,	"		1	1
	Franklin,	Total to Oct. 6,		375	7
Mississippi:	Taylor,	"	"	100	11
	Orwood,	"	"	79	4
	Waterford,	"	"	2	
	Jackson,	"	"	41	4
	Oxford,	"	"	82	6
	Edwards,	"	"	6	
	Water Valley,	"	"	10	
	Harriston,	"	"	42	4
	Fayette,	"	"	1	
	Madison,	"	"	2	1
	Port Gibson,	"	"	1	1
	Woodville,	"	"	1	
	Clinton,	"	"	1	
	Starkville,	"	"	3	
	Hermanville,	"	"	2	

Public schools, colleges and seminaries have been generally closed throughout Mississippi, and all courts, including the State Supreme Court, have been suspended.

Correspondence.

THE "BAY STATE'S"[1] FIRST TRIP TO PORTO RICO.

Boston, October 8, 1898.

Mr. Editor: — By all accounts, the *Bay State's* Porto Rican voyage was a "soft snap" in comparison with her Cuban voyage — for all concerned. It was more like a pleasure excursion and less like a relief expedition. There was no real hardship about it. The vessel rolled and pitched very ostentatiously despite the smoothness of the sea, but there was but little seasickness among us on the way down and none on the way back.

The heat was never oppressive at night. I needed a blanket every night of the whole three weeks — even when we were in port and at anchor. In the daytime it was very hot in the sun between 11 and 4 o'clock, but in the shade I never found it uncomfortable.

To me there was no languor in the air. There was a great deal of work to be done, indeed I have seldom worked harder than during the six days we were at Ponce; but we felt energetic and eager for the work. We were told on every hand by those who had been some weeks on the

[1] The *Bay State* is the Hospital Relief Ship of the Massachusetts Volunteer Aid Association.

island that our energy would soon wear itself out and that we should soon move as slowly and "enthuse" as little as did most of the soldiers and doctors with whom we came in contact. But I am inclined to think that we could have kept it up a good deal longer if we had continued to eat and sleep on the ship. The listlessness, forgetfulness and irritability of many of the officials who have lived there some time and become acclimated may very well have been due to their insufficient food and sleep. Almost every one of the twenty odd officers and physcians who took a meal with us on board the *Bay State* said, "Well that's the first square meal I've had since I left home," and hardly a man but would interrupt himself to scratch now and then those portions of his anatomy where the fleas were most active. A great deal of the debility for which the climate was blamed may very possibly, I think, be due to lack of sufficient food and sleep. I do not mean to imply that the Government was to blame for this. Most of the men whom I saw were pursuing the regular American happy-go-lucky tactics regarding food and sleep, that are so familiar to us all.

There was very little rain while we were there. A few short showers — most of them at night — were all that we felt though we saw many more falling on the mountains farther inland, and at Utuado in the interior it rained every day except the one when our party was there. So much for the climate.

Our general course was as follows: On reaching Ponce at sunset, after a six days' voyage, we were at once warned away to avoid an expected hurricane which was to make the harbor unsafe. So we ran back along the southern coast of the island to Guanica — a deep, safe harbor into which our captain steered us safely though it was nearly pitch dark and we had no pilot. Behind us came the ill-fated *Seneca* with a native pilot, and ran ashore!

We stayed at Guanica twelve hours — until we heard that the hurricane had gone off without approaching the island — and then steamed back to Ponce. Here we passed six days in the process of getting coal and water, and communicating meantime with the Sixth Massachusetts in the mountains at Utuado. Finding that we could not move the sick down from Utuado to Ponce on account of the impassibility of the trail for wagons, we sailed completely round the island to Arecibo on the north coast and there received the ninety-one patients convoyed down from Utuado by Drs. Crockett and Manahan who had gone in from Ponce on mules, as well as by Drs. Burrell and Clarkson who drove up to meet them from Arecibo. I am tempted to tell of the many difficulties and adventures of this move, but here I must confine myself to saying that it was largely due to the splendid generalship of Dr. Burrell — his foresight, his resourcefulness and great executive ability — that everything went so smoothly and successfully. The ninety-one patients were all brought down on a single trip, — a twelve hours' drive over a horribly rough road — and carried to the *Bay State* in a huge lighter fitted with a latteen sail. After lying at anchor another day, during which we got the cases diagnosed and settled down for the trip back, we sailed for Boston just two weeks from the day we had left there.

We saw seventeen sick men at Guanica, one hundred and sixty-nine at Ponce, and ninety-one from Utuado. As those at Ponce were collected there from all parts of the island, at the U. S. General Hospital and the Red Cross Hospital, it is fair to suppose that we had a fair sample of such sickness as exists among the American troops in Porto Rico.

I examined the blood twice in all of the 277 cases above mentioned, once for malaria and once for the Widal typhoid reaction.

To me the results of these examinations were very surprising. Just before leaving Boston I had been examining at the Massachusetts General Hospital the cases brought from Santiago by the *Olivette* and the *Bay State*. A large proportion of these cases showed in their blood the organisms of estivo-autumnal malaria, and I had become so used to seeing the crescentic parasites in case after case that I listened with polite scepticism to the report of the doctor at Guanico, who said to me that he had seen no malaria in his regiment. When my examinations for malaria began to turn out negative in case after case, I could hardly believe my eyes, and repeated the examinations as carefully as I knew how. The result was the same, and out of the whole 277 cases examined I found malarial parasites in only two cases — one the tertian, and one the estivo-autumnal organism. Since the crescentic forms of malarial parasites remain in the blood for weeks despite the administration of quinine, I do not think that these negative findings were due to the fact that almost all the patients (typhoids included) had been taking quinine in large doses. [We were highly gratified to hear before leaving Ponce, that owing to my findings and those of Dr. T. Leary, the wholesale use of quinine in all fevers at the Ponce United States Hospital was stopped. This alone would, I think, have made the *Bay State's* trip worth while.]

The greatest kindness and courtesy was shown us everywhere, both by military men and army surgeons. I spent four days, morning and afternoon, at the United States Hospital at Ponce, which is a splendid institution. It stands on a hill behind the town — a very large, square, one-storied building, the wards opening onto a central courtyard, and containing over three hundred beds. It was cool, clean and airy, no bad smells anywhere, good beds, plenty of doctors and nurses (male and female) among whom I found several friends; records and charts orderly, and patients apparently contented. I walked about without any kind of *surveillance* and talked with patients and nurses. The typhoids were getting sponge baths every four hours for a fever of 102° or more, and milk every three hours. The mortality was only three per cent. among the typhoids so far.

Among the physicians whom I found there were Drs. Greenwood and Chadwick, of Waltham, and Dr. T. Leary, formerly of the Boston City Hospital, who is now the pathologist of the Ponce Hospital and is doing splendid work there. He had no typhoid cultures for the Widal test and we were very glad to be able to supply him with these as well as with formaldehyde, fruit jars, slides and cover-glasses and other necessities which he lacked. Among the nurses I saw Sister Louisa of St. Margaret's and Mr. Woods of the Massachusetts General and Boston City Hospital. The former said that she was well pleased with everything at the hospital and looked the picture of health.

At the Red Cross Hospital there were only some eight or ten officers. They were receiving the same excellent care as their soldiers at the General Hospital.

Another Red Cross Hospital was managed by the Spaniards and contained about thirty wounded Spanish soldiers — no fever cases. It was ill-smelling and disorderly, but the men seemed to be convalescing well.

The field hospital of the Sixth Massachusetts at Utuado, I did not see, but Dr. Burrell reported it as in excellent condition, managed just then by Dr. Washburn (lately surgical interne at the Massachusetts General Hospital) during the illness of Surgeon-Major George Dow who came home with us on the *Bay State*. To help fill his place we left at Utuado Dr. Booth-Clarkson, who went down with us on the *Bay State*, as Porto Rican agent of the Massachusetts Volunteer Society. Four of our nurses (two male and two female), already remained at Utuado and we sent them a large supply of Mellin's Food, Kennedy's crackers, corn starch and other stores.

Seeing the patients so well cared for at Utuado and Ponce and considering the roughness of the road from Utuado to the sea, we decided to take only convalescents who would not be hurt by the hard, all-day wagon journey. Most of the patients had diarrhea when they came aboard and it was very striking to notice how quickly this diarrhea ceased during the voyage home without the use of any medicines. On reaching Boston there were only three or four, out of the eighty odd who had diarrhea when we left Porto Rico, in whom the loose discharges continued.

Very truly yours, RICHARD C. CABOT, M.D.

METEOROLOGICAL RECORD

For the week ending October 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	6.00 A. M.	6.00 P. M.	Daily mean.	6.00 A. M.	6.00 P. M.	6.00 A. M.	6.00 P. M.	6.00 A. M.	6.00 P. M.	
S...25	30.12	80	84	45	93	97	90	N.	S.E.	8	4	R.	O.	.02
M...26	29.86	63	73	53	88	75	82	S.W.	S.	10	4	O.	O.	
T...27	29.78	58	65	52	69	57	63	N.W.	N.W.	22	5	C.	C.	.33
W..28	30.04	62	74	50	59	86	73	W.	N.W.	12	4	F.	C.	
T...29	30.16	65	75	55	58	90	69	S.	S.W.	6	12	C.	C.	
F...30	30.18	70	83	57	79	65	72	W.	S.W.	11	14	C.	C.	
S....1	30.36	66	74	59	79	94	86	W.	E.	4	8	C.	C.	
☛	30.07		71	53			77							.35

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; M., snow. † Indicates trace of rainfall. ☛ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 1, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1269	347	16.96	10.80	10.56	2.40	1.76
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	382	113	19.76	11.44	4.16	6.24	8.06
St. Louis	622,000	—	—	—	—	—	—	—
Boston	528,463	—	—	—	—	—	—	—
Baltimore	506,389	203	81	24.80	6.37	12.25	3.43	7.35
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	79	32	23.94	7.58	11.34	3.78	3.78
Washington	277,000	—	—	—	—	—	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	58	23	18.92	10.32	18.92	—	—
Nashville	87,784	30	9	13.33	23.33	10.00	—	3.33
Charleston	65,165	40	19	17.50	10.00	12.50	5.00	—
Worcester	105,050	26	13	19.25	—	7.70	7.70	—
Fall River	98,919	38	23	21.04	7.89	13.15	7.89	—
Cambridge	89,724	33	18	24.24	9.09	21.21	—	—
Lowell	88,641	29	13	20.70	6.90	13.80	—	6.90
Lynn	66,703	—	—	—	—	—	—	—
New Bedford	66,340	27	18	3.70	7.40	—	3.70	—
Somerville	61,101	—	—	—	—	—	—	—
Lawrence	57,263	25	14	16.00	12.00	4.00	—	8.00
Springfield	56,501	18	16	22.22	16.66	11.11	5.55	—
Holyoke	43,424	15	9	53.33	13.33	20.00	13.33	—
Brockton	37,278	10	3	40.00	20.00	20.00	—	—
Salem	36,883	10	3	—	10.00	—	—	—
Malden	34,613	8	4	37.00	—	25.00	—	—
Chelsea	33,468	10	—	—	30.00	—	—	—
Haverhill	32,622	7	3	14.28	42.84	—	—	—
Gloucester	30,589	—	—	—	—	—	—	—
Newton	29,716	13	—	15.38	7.69	15.38	—	—
Fitchburg	29,438	5	3	60.00	—	20.00	20.00	—
Taunton	28,167	5	1	—	20.00	—	—	—
Everett	25,238	4	1	20.00	—	—	—	20.00
Quincy	23,549	5	2	60.00	—	60.00	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	6	1	—	33.33	—	—	—
North Adams	20,971	3	3	—	—	—	—	—
Chicopee	17,942	10	3	—	10.00	—	—	—
Medford	16,511	4	0	—	25.00	—	—	—
Newburyport	14,915	—	—	—	—	—	—	—
Melrose	14,032	—	—	—	—	—	—	—

Deaths reported 2,385: under five years of age 969; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 443, consumption 251, acute lung diseases 187, diarrheal diseases 236, diphtheria and croup 80, typhoid fever 77, whooping-cough 24, cerebro-spinal meningitis 14, scarlet fever 6, measles 4, erysipelas 2.

From whooping-cough New York 13, Pittsburg 4, Philadelphia 3, Providence 2, Malden and Haverhill 1 each. From cerebro-spinal meningitis New York 7, Holyoke 3, Providence 2, Baltimore and Worcester 1 each. From scarlet fever New York 4, Philadelphia, Baltimore, Cambridge and Lawrence 1 each. From measles New York 4. From erysipelas Philadelphia and Baltimore 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending September 24th, the death-rate was 23.6. Deaths reported 5,073; acute diseases of the respiratory organs (London) 187, diarrhœa 1,238, whooping-cough 65, diphtheria 51, fever 45, scarlet fever 28, measles 27.

The death-rates ranged from 15.9 in Portsmouth to 38.7 in Gateshead; Birmingham 22.6, Bolton 29.4, Cardiff 21.1, Hull 31.5, Leeds 20.6, Liverpool 29.0, London 21.6, Manchester 32.4, Newcastle-on-Tyne 28.5, Nottingham 23.8, Salford 35.8, Sheffield 26.0, Sunderland 37.0.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, October 19, 1898, at 8 o'clock.

At 8 o'clock: Dr. Whitney will review the work of the Section during the past two years.

At 8.15: Drs. Henry Jackson, J. J. Minot, H. F. Vickery and H. F. Hewes will speak of their experience at the various hospitals in the "Diagnosis and Treatment of the Diseases Prevalent in the Army."

Dr. R. C. Cabot and W. H. Prescott will speak of the "Conditions at Porto Rico and Montauk."

At 9 o'clock: Election of a chairman for the ensuing two years. E. W. TAYLOR, M.D., *Secretary*.

THE TRI-STATE MEDICAL SOCIETY. — The tenth annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held in Birmingham, Tuesday, Wednesday and Thursday, October 25, 26 and 27, 1898. The prospects are for a large and successful meeting.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. — The eighth annual meeting of this Association will be held at Omaha, December 28 and 29, 1898.

GEO. H. SIMMONS, *Secretary*, Lincoln, Neb.
D. S. FAIRCHILD, *President*, Clinton, Ia.

THE NEW YORK STATE MEDICAL ASSOCIATION.

REDUCTION OF FARE. DINNER TICKETS.

A reduction of fare and one-third, on the certificate plan, has been secured for those attending the meeting of the New York State Medical Association, New York City, October 18–20, 1898.

Subscribers, invited guests and delegates from other State societies will secure their tickets for the Association Dinner by calling at the registration office.

RECENT DEATHS.

CHARLES LEONARD FOX, M.D., M.M.S.S., died in Lowell, October 5, 1898, aged twenty-eight years.

CHARLES MOSES HOLMES, M.D., M.M.S.S., died in Northampton, October 7, 1898, aged thirty-nine years.

CHARLES POMEROY WORCESTER, M.D., M.M.S.S., died in Newtonville, October 9, 1898, aged thirty-seven years.

JOHN B. CURTIS, M.D., of Somerville, whose death was noted last week, was born in East Cambridge thirty-one years ago; was educated in its public schools, graduating from the high in 1883. He graduated from the Harvard Medical School in 1891. He immediately took up active practice in Somerville. He was a member of the Massachusetts Medical Society and secretary of the Somerville Medical Society, and was also on the staff of the Somerville Hospital.

CLAUDIUS HENRY MASTIN, M.D., LL.D., a distinguished surgeon, died in Mobile, Ala., on October 3d, at the age of seventy-two years. He was born at Huntsville, Ala., on June 4, 1826, and was graduated from the Medical Department of the University of Pennsylvania in 1849. After graduation he spent five years in study in Paris, London and Edinburgh and began the practice of his profession in Mobile in 1854. During the Civil War he served in the Confederate Army as medical director and later as corps surgeon under General Polk in the Army of the Tennessee and elsewhere. After the war he resumed his practice in Mobile. In 1875 the honorary degree of LL.D. was conferred upon him by the University of Pennsylvania. Dr. Mastin early entered the field of surgery, and his skill as an operator was great, but he was in addition to this an able diagnostician and therapeutist. He was one of the original members of the American Surgical Association, of the American Genito-Urinary Association and of the Southern Surgical and Gynecological Association, and was active in the organization of the first Congress of American Physicians and Surgeons assembled in Washington in 1887. He was a member of the central council of the University of Pennsylvania as well as one of its examining board and a frequent contributor to medical literature.

Original Articles.

A SUCCESSFUL GASTRECTOMY FOR CANCER OF THE STOMACH.

BY MAURICE HOWE RICHARDSON, M.D., BOSTON,
Visiting Surgeon to the Massachusetts General Hospital; Assistant Professor of Clinical Surgery, Harvard University.

THE following case seems of interest in connection with the subject of gastric surgery. With the cases of Schlatter and Brigham, it shows that nutrition can be carried on without a stomach. It helps to prove, moreover, that no case of gastric cancer is too extensive for successful removal so long as the tumor is limited to the stomach itself.

It is doubtless true that cancer in the stomach, like cancer elsewhere, varies in malignancy, and that some of the operations that are apparently unfavorable are followed by a longer immunity than others that seem encouraging. In cancer of the uterus, for instance, I recall two cases in which the operation seemed hopeless, and was in fact so pronounced by others; yet in both a vaginal hysterectomy has given perfect general and local health, now lasting three years. The fact is that cancer itself is little understood, — the possibilities of cure even less. The last thing to be done is to leave the patient to certain death, and that should be done only when the disease is so situated that some of it must be left. In the surgery of cancer of the stomach — and for that matter in the surgery of cancer of all organs — no attempt should be made at permanent cure unless the tumor can be removed by a margin of sound tissue. In securing a suitably broad margin the dissection may and should invade any structures not essential to life. If practically the whole stomach can be successfully removed in those cases in which the tumor invades the greater part of it, what may we not expect after extensive dissections of recent and limited disease?

Schlatter's successful extirpation of the stomach excited an interest justly extraordinary. Brigham's brilliant case — the second successful one — was less remarkable only in that it was not the first. But for the success which attended these two operations, I should never have undertaken in the following case so formidable a procedure as gastrectomy. In reporting this case I would therefore make full acknowledgment of my indebtedness to Schlatter and to Brigham. Not that a total extirpation of the stomach is so very much more difficult than a partial excision, — I had frequently demonstrated upon the cadaver the feasibility of an esophago-duodenostomy. It was our ignorance as to the immediate and the remote effects of a complete removal of the stomach, rather than the anatomical and surgical difficulties that made the operation formidable. To have faced successfully this uncertainty, to have solved the question of possible health after gastrectomy, is an achievement by Schlatter which cannot be shared by any one else.

It is important that every operation by which the whole stomach or the greater part of it is removed should be carefully recorded, in order that the dangers, the fatalities, and especially the ultimate results, good or bad, may be known.

Gastrectomy, like pylorectomy, enterectomy, and other operations of the first magnitude, should not be lightly undertaken by any one, — it should not be undertaken at all by the inexperienced.

The indications for gastrectomy are limited. Only those cases are suitable in which the disease can be removed by a broad margin. Such a limitation makes the cases in which gastrectomy can be performed extremely rare; for few gastric carcinomata so extensive as to require total extirpation are unattended by hopeless local infiltrations, or liver or other remote metastases. In fact, as I have remarked elsewhere (*Boston Medical and Surgical Journal*, August 4, 1898), when a tumor is perceptible in suspected gastric cancer, the case is usually hopeless. The indications for gastrectomy are, in a word, an extensive malignant tumor limited to the stomach in a patient of suitable general strength; the contra-indications, a local infiltration, a remote metastasis, or a patient of unsuitable general condition. Uncertainty still exists as to the ultimate results, — an uncertainty which may yet limit still more narrowly the already narrow confines of operative indications. How long will the intestine carry on its vicarious functions of stomach digestion? Will the patient continue to improve, or shall we look forward to a progressive marasmus?

Mrs. ——, age fifty-three, a patient of Dr. W. P. Defries, of Brookline, consulted me on May 20, 1898. She had always been well till the present trouble, except that ten years ago she was ordered West for lung trouble, from which she made a perfect recovery. During the past year she has been losing appetite and strength, and has been troubled much by indigestion. There has been neither pain nor vomiting; the only thing that she noticed was weakness and discomfort.

She has had six children. She passed the menopause about a year ago. Her former weight was 163; her present weight is 128. The only thing that she noticed was that her "food did not digest. It seemed a sort of knotting up of the bowels." She has had to be very careful about her diet. She could eat steak, mutton, asparagus, cracked wheat, etc. She would take very little food of any kind, her appetite not being good. The bowels have been irregular for the last year. She has sometimes gone five or six days without a movement. Dr. Defries discovered a tumor in the abdomen just above the umbilicus, in the middle of April, 1898.

The father is living at eighty-three. The mother died at sixty-three. One sister died of consumption; one sister is living and well; two brothers are living and well; one brother died of brain trouble; one brother went West for his lungs.

On questioning, I found that there had been no vomiting of blood; in fact, there had been no vomiting of any kind. There had been no blood in the stools. Continued loss of weight and strength, with indigestion and discomfort, were the chief symptoms.

The general appearance was good: there was no cachexia. In the abdomen about the region of the umbilicus, a smooth, somewhat flattened, hard, tympanitic tumor could be felt, about which, and apparently through which, there was much gurgling. The tumor was about the size of the fist, movable to a certain extent in all directions, but restricted by deep attachments. The outer border of the tumor was irregular and nodulated. The mass suggested an enlarged right kidney, but it could not be depressed into the right renal region. The possibility of a gall-bladder tumor was considered, but from the history and

the situation of the tumor was rejected. Cancer of the stomach was thought possible, but improbable. The diagnosis of malignant tumor of the transverse colon seemed most likely to be correct, because of the situation, mobility, resonance of the mass, and especially because of the gurgling and squeaking of gas through it — symptoms which I had come to regard as indicative of malignant stricture of the intestine. The diagnosis was that of malignant tumor of the transverse colon or of the omentum, encroaching upon the calibre of the intestine. Though the prognosis seemed grave, an exploration was advised.

The patient was sent to the Eliot Hospital, 38 Commonwealth Avenue, where the operation was performed on May 31, 1898. There were present at the operation the attending physician, Dr. Defriez, and Drs. Brewster and Jones and Miss Durling, who assisted. The ether was given by Miss West. Several nurses of the hospital were present.

Under ether a hard, movable tumor could be felt at and above the umbilicus. Though deeply attached, it could be moved about in the pyloric region. It was perfectly evident that this tumor was connected with the stomach. A median incision showed the mass to be, in fact, a tumor of the stomach involving the greater part of its walls, — practically the whole organ except a small portion next the esophagus. The liver was normal. No nodules outside the stomach were found, even after prolonged and careful examination. There was no ascites. The mobility of the tumor was such that it could be drawn far out of the wound; its duodenal and its esophageal attachments could be clearly seen and examined. Between the esophagus and the tumor there was a circular margin of healthy stomach about one inch wide. Towards the duodenum the disease had extended as far as the pylorus. The stomach, as a whole, was contracted to half its usual size. By traction on the tumor outwards and to the left, the unaffected extremities of it could be brought near enough together to warrant the belief that they could be successfully sutured after the removal of the intervening stomach. This belief was only partially justified by the event, for it was with some difficulty that the cut ends were brought into apposition, and then only after freeing the duodenum. I should have given up further procedure in this case but for the brilliant success of Schlatter and Brigham, for it was clear that to do any good the entire stomach must be sacrificed. Moreover, if a gastrectomy was ever justifiable it was in this case, for the disease was limited to the stomach, the duodenum could be brought to the esophagus, and the patient was in excellent condition. I believed that cancer should be removed, even by the most formidable and dangerous procedure, provided that it could be removed by a sufficiently broad margin.

Extirpation of the tumor was immediately begun. The first step was separation of the omentum and exposure of the posterior gastric wall. The omentum was tied with silk in one-inch sections. About five inches of the transverse mesocolon were unintentionally included in the sections. This gap was later closed by suturing the V-shaped edges together. I was a little anxious about the vitality of the segment supplied by the ligated mesocolon, but it kept a good color throughout the operation, and the success of the operation was not jeoparded. The suturing along the greater curvature was continued until healthy tissue was reached, — an inch or more beyond the upper limits of the disease. As fast as the ligatures were tied the stomach attachments were cut. Abundant masses of gauze were then placed above, below, and behind the pylorus, duodenum, and main body of the stomach. The escape of gastric contents was prevented by tying the pylorus with a narrow piece of gauze. The duodenum was divided transversely by means of scissors. The slight escape of gastric and duodenal contents at the plane of excision was caught in the gauze, which was then removed and replaced by fresh. The bleeding points of the cut surface were caught with hemostatics. The attachments of the lesser curvature were next transfixed, tied in small sections, and divided. At this stage the stomach was free everywhere except at the cardia. It could be drawn downward and outward until the esophageal attachment was plainly visible. It was surprising to see how easily, by traction of the freed stomach, the upper extremity could be examined and manipulated. The stomach was removed by an incision at the cardia, well above the upper limits of the disease. A bell-shaped upper opening was left, somewhat too large to fit the opening in the duodenum. This bell-shaped opening was therefore lessened by a few interrupted silk sutures. Approximation of duodenum to esophagus proved much more difficult than was anticipated, because the duodenum was held back by its blood-vessels and other attachments. Traction on the duodenum developed tense retro-duodenal bands, which evidently were preventing the desired elongation. By tying and cutting these restraining attachments, an inch or more was gained, — enough to permit approximation without dangerous tension. The joint was made by interrupted Lembert sutures of silk. Enough gauze was placed about the line of suture to provide against the escape of gastric contents. The loss of blood was inconsiderable, the shock slight, the time of operation one hour.

AFTER-TREATMENT — (BY DR. G. W. W. BREWSTER).

The operation was attended by little if any shock. On being put to bed the patient was given a hypodermic injection of one-thirtieth of a grain of strychnia, one-eighth of morphia, and one one-hundredth of atropia, and an enema of a pint of salt solution with two ounces of brandy and three ounces of coffee. Two hours later, with the pulse at 68, she was given another enema of a pint of salt solution and an ounce of brandy. In the evening, five hours after the operation she was well out of ether, the pulse was 64; she was somewhat restless. There was no vomiting, but considerable belching of gas from the mouth, preceded by a good deal of pain in the epigastrium. At five o'clock she was given another eighth of morphia. At that time the pulse was 72; the temperature 97.8°. During the night nutritive enemata were given every four hours — four ounces of peptonized milk, the white of an egg, half an ounce of brandy, and five drops of laudanum. During the night she was fairly comfortable; there was slight restlessness. She passed voluntarily eight ounces of urine during the evening. Gas was belched at times during the night, and caused the same distress as in the afternoon. The dressing was stained with serum, and had to be reinforced. Morphia was given, one-eighth grain, subcutaneously, at 3 A.M. She had slept in all during the night from three to four hours, in short naps.

June 1st. Pulse 86; temperature 100.6°. She was thirsty this morning and was given a pint of salt solution by rectum. The nutritive enemata were continued during the day. As she complained of the taste of the brandy in her mouth after enemata, the amount was reduced to two drachms. During the day she slept in short naps, in all about two hours during the morning. The pain in the epigastrium continued in paroxysms which were relieved after the belching of gas. In the afternoon the pulse was 94; temperature 100.8°. Her greatest discomfort was from thirst and dryness of the mouth which were relieved by constant moistening. During the evening an enema was given of saturated solution of salts, two ounces, and glycerine, one ounce. This was followed by the passage of a large amount of gas, with great relief. During the night one-eighth grain of morphia was given subcutaneously, the nutritive enemata being continued every four hours. She was very thirsty all night, and had the same dryness of the mouth. This was somewhat helped by the constant moistening of the lips and mouth. She slept about five hours in short naps during the night. The amount of urine passed in twenty-four hours was thirty-two ounces.

June 2d. Pulse 88; temperature 100.2°. This morning the patient coughed up a good deal of thick, brown mucus, which relieved her very much. There is a constant desire to cough, but the cough is simply a dry hack. This morning she was given two teaspoonfuls of cold water to swallow, which was repeated again in an hour. The nutritive enemata were continued to-day. She was slightly nauseated during the morning. In the evening, pulse 84; temperature 101.8°. The patient is still troubled with gas, although she passed large amounts by rectum. Quite restless and thirsty during the night, but slept in short naps from four to five hours. The amount of urine, thirty ounces in the last twenty-four hours.

June 3d. Pulse 72; temperature 100.4°. To-day she is beginning to take cold water by mouth again, — one teaspoonful every hour. The nutritive enemata are still continued. Evening, pulse 70; temperature 101.4°. During the day has slept in short naps and been fairly comfortable. In the evening the dressing was changed. The gauze was fairly saturated with serous oozing. The packing was not disturbed. It was apparently perfectly sweet. This evening we began to give her by mouth teaspoonfuls of milk and lime-water every hour. The nutritive enemata cannot be given so often now, as they are not well retained. During the night she thought that the milk and lime-water caused some distress. There was no nausea. The gas has passed freely from the rectum during the night, and most of the nutritive enemata have not been retained. During the night she had by mouth an ounce and a half of milk and lime-water; cold water, two ounces. She slept in short naps from five to six hours. On the whole, she had a rather good night. Twenty-five ounces of urine in the last twenty-four hours.

June 4th. Pulse 60; temperature 99.2°. With the cleansing enema this morning there was a small amount of fecal matter. To-day she is taking milk, with equal parts of lime-water, one-half an ounce every hour. The nutritive enemata have been entirely omitted, owing to the irritability of the rectum. The dressing was done this morning; the outside gauze changed. It was thoroughly saturated with a serous ooze, and had a peculiar yeast-like odor. During the day she took six ounces of milk and lime-water and five ounces of cold water; no stimulants at all. In the evening the pulse was 66; temperature 100.8°. Milk and lime-water were now given, an ounce at a time every hour. There was one movement containing some solid feces. The dressing was changed again during the night. She was very restless during the night and complained of pain in the wound. Slept in short naps, of fifteen minutes, about five hours. Twenty-four ounces of urine in the last twenty-four hours. The dressing has a peculiar yeasty odor.

June 5th. Pulse 60; temperature 99°. She had a good movement of the bowels this morning, formed, but of a light gray color. The packing of the wound started out a little to-day. It is getting rather foul. The outer dressing is changed twice daily. She is given now the milk and lime-water once every hour, and on the half-hour an ounce of water. The evening temperature 101.2°; pulse 70. The hacking cough troubles her a good deal, and at times she brings up a little mucus. During the day she took twelve ounces of milk and lime-water. During the night she took eight ounces of milk and lime-water, making twenty ounces of milk and lime-water during the twenty-four hours. Twenty ounces of urine in the last twenty-four hours. She had a better night than usual; was less restless, requiring no opiate.

June 6th. Pulse 64; temperature 98.8°. The bowels moved this morning — still of a light brown color. To-day the white of an egg is added to the milk and lime-water, but the amount is not increased above an ounce. During the morning she was given one soft-boiled egg, parts of which appeared in a movement of the bowels an hour and a half later. The white of an egg was given each time with the milk and lime-water; no more boiled eggs were tried. During the day she had twelve ounces of milk and lime-water and the whites of three eggs. Afternoon pulse 72; temperature 100.6°. The irritation of the throat seemed to cause a good deal of distress, and a half-grain of codeia was given during the evening. She slept from five to six hours during the night, in short naps. The nourishment during the night was twelve ounces of milk and lime-water with the white of one egg. The nourishment for the past twenty-four hours has been twenty ounces of milk and lime-water, the whites of four eggs, and one soft-boiled egg.

June 7th. Pulse 76; temperature 98.4°. This morning she was given liquid nourishment to the amount of two ounces, — beef-juice alternated with milk and lime-water, with the white of egg. The dressing was done this morning, and the gauze packing entirely removed. It was thoroughly saturated with a yellow-colored fluid, of an offensive yeasty odor. On removing the gauze packing there was a large opening left down to the region of the suture. This was washed out with boiled water and lightly repacked with strands of gauze. The nourishment during the day has been four ounces of beef-juice, four ounces of milk and lime-water, with the white of one egg, four ounces of gruel. Pulse at 5 P. M. 104; temperature 101.8°. The cough still bothers her, but is somewhat relieved by codeia, one-half grain. She had a fair night — slept about six hours. The twenty-four-hour amount of nourishment was as follows: gruel thirteen ounces (plain oatmeal gruel), milk and lime-

water thirteen ounces, white of three eggs, beef-juice four and a half ounces.

June 8th. Pulse 78; temperature 99°. The dressing is now done twice a day, and the sinus irrigated with boiled water and repacked with gauze each time. There is still a large amount of discharge which has the characteristic yeasty odor. During this day there seemed to be a little constipation, and the patient was given half a grain of calomel and later a sedlitz powder. She had a good night. The amount of nourishment during the twenty-four hours was: beef-juice seven ounces and a half, gruel twenty ounces, beef-steak to chew, white of egg, milk and lime-water seven ounces.

June 9th. The nourishment is now given in two-ounce amounts. There seems to be a tendency toward diarrhea, the patient having had several loose movements during the day. The afternoon temperature was 99°; pulse 88. Nourishment now given four ounces at a time every two hours. Twenty-four hours' amount of nourishment: gruel twelve ounces, milk and lime-water twenty-eight ounces, whites of four eggs, beef-juice seven ounces.

June 10th. Pulse 88; temperature 99.8°. Two soft-boiled eggs were given during the morning, and apparently were digested. The patient now has a fairly comfortable time, though she is rather restless at night and complains still of the cough. The amount of urine in twenty-four hours to-day is thirty-six ounces. Amount of nourishment: four ounces of beef-juice, two soft-boiled eggs, the whites of four eggs, sixteen ounces of gruel and sixteen ounces of milk and lime-water. She apparently is gaining a little strength each day. The dressing contains less discharge, and the wound is beginning to granulate.

June 11th. It has been impossible to persuade the patient to take any form of stimulant; in fact, she has improved so steadily that it has not seemed necessary. To-day she was given some claret and water; but would take it only once. Liquid Dover's powder was given during the night to see if it would benefit the cough, and she had a better night than usual. The amount of nourishment for this twenty-four hours was twenty ounces of gruel, twelve ounces of milk and lime-water, whites of four eggs, two soft-boiled eggs. The bowels moved twice during the twenty-four hours.

From this time until the 18th of June there was nothing especial in the history of the case. She took practically the same amount of liquid nourishment and gained a little strength each day. Nothing unusual occurred. The discharge became daily less offensive and the patient grew stronger.

On June 13th with her liquid nourishment, she tried a small piece of bread and butter, which apparently was not digested and caused some diarrhea. She can now take with comfort four ounces of liquid nourishment every two hours, and apparently it causes no distress and is properly absorbed.

On June 18th the pulse rose to 106; the temperature to 102.5° in the morning. She was much weaker on this day and apparently something was going wrong. The temperature on the previous day had been practically normal in the morning, but 102° in the evening, and this morning it was still up. The amount and character of the discharge from the sinus did not account for her temperature, — there was still a peculiar yeasty smell, but no evidence of suppuration. There was a troublesome diarrhea. The food was peptonized to-day without apparent effect. In the evening the temperature fell, but still she seemed restless and as if something was going wrong. During these twenty-four hours she took three soft-boiled eggs, the whites of three eggs, twenty ounces of peptonized milk and seven ounces of beef-juice. Owing to her poor condition, we thought that some of her trouble might be due to malnutrition from not properly digesting her food. Dr. Pfaff was called to see her in consultation. He thought that the rise of temperature and her poor condition were owing partly to digestive disturbance, possibly from too much feeding by mouth, and also to absorption from the wound.

June 19th. The pulse was 110 and the temperature 102.2° in the morning. The digestive tract was entirely put at rest during this day by giving no food by mouth. Enemata were given three times during the day and the sinus washed out with peroxide of hydrogen and very dilute solution of corrosive sublimate. Several sloughy stitches and pieces of necrosed tissue were fished from the depths of the wound by means of a crochet needle. In the evening the pulse was 102, and the temperature 101.4°. To-night the face has begun to swell, and the patient has evidently an alveolar abscess, which may possibly account for some of her disturbance.

June 20th. Pulse 106; temperature 102°. The face is swollen and there is a great deal of pain. The abscess was opened and considerable pus removed. In other respects the patient is in good condition.

June 21st. To-day champagne, half an ounce at a time, is added to the liquid nourishment, and is much appreciated by the patient. Codeia, one-third of a grain three times a day, seems to control the troublesome cough. She is taking nourishment well and seems to be gaining. The temperature is gradually coming down. There is more pus from the sinus, and silk sutures have been discharged at various times.

June 24th. This morning, temperature 100°; pulse 106. The evening temperature was 99.5°. This is the first day for almost a week that it has approached normal. The rise of temperature seems to be explained by suppuration at the bottom of the sinus, with absorption of putrefactive products, for the ligatures and pieces of tissue which come out from the sinus at times have been very offensive. The sinus is now discharging less and the patient has assumed a better aspect. The champagne which she has had for the last three or four days seems to have materially assisted her. The amount of nourishment in twenty-four hours has been beef-juice six ounces, chicken broth eight ounces, milk and lime-water sixteen ounces, and the whites of eggs eight ounces.

June 26th. Small amounts of bismuth given three times a day have helped restrain frequent movements of the bowels. To-day the temperature and pulse are practically normal. The patient has sat up out of bed for half an hour. Some nights it is necessary to give a small dose of codeia for restlessness. The amount of nourishment to-day has been six ounces of chicken broth, sixteen ounces of milk and lime-water, three ounces of beef-juice, twelve ounces of chicken broth, whites of ten eggs, roast beef and ice cream. The beef was chewed and only the juice swallowed.

June 27th. The patient has sat up again out of bed to-day and has gained remarkably in strength. The nourishment for this twenty-four hours has been as follows: beef-juice six ounces, chicken broth twelve

ounces, barley broth six ounces, milk and lime-water eight ounces, whites of ten eggs, some white meat of chicken and boiled rice.

From this time until July 5th there was nothing of special interest in the history. She has made a steady improvement. The nourishment has been practically the same. There is distress if more than four or five ounces are given at a time, and a solid food, like bread, apparently does not agree with her yet.

On July 5th the patient went home, driving five miles in an open carriage without fatigue. Since arriving at home she has been out of doors all day long, and has improved in general condition. At present she is enjoying life, her food satisfies her hunger, is digested perfectly well, the bowels move normally, and she is free from the distress that she used to have after taking food.

On August 24th the patient was examined by Dr. Richardson. The wound was entirely healed. Her general appearance was good. There was no evidence of recurrence. She looked much improved, and reported herself as feeling very well. There had been a "drawing sensation" in the epigastrium as if something was on the stretch. This feeling had caused a slight stooping, which was, however, rapidly disappearing.

In connection with this and similar cases of malignant disease the question of surgical interference may well receive a few words of discussion. The patient left to palliative treatment, though he avoids the dangers and sufferings of a surgical operation, has before him:

(1) The suffering incident to the disease. (This may vary between discomfort and unendurable pain.)

(2) A hopelessness and mental depression to which death is in many instances preferable.

(3) Certain death.

If subjected to a radical operation the patient has before him:

(1) The dangers and sufferings of a surgical operation. (But, though the danger is great, the suffering may be no greater — it may even be less — than the suffering incident to the disease.)

(2) Hope and elevation of spirits instead of mental depression and despair.

(3) A fair chance of a recovery that may be permanent, though recurrence may be the rule.

A careful consideration of this question in favorable cases leads to but one conclusion, namely, that the greatest good will follow reasonable surgical interference. The chief arguments against radical measures seem to be in the necessarily great dangers of the operation, and the uselessness of deliberately incurring them. Certainly no method of treatment is justifiable which is useless. But the operation in suitable cases is by no means useless, as shown (1) by the lessening of suffering and the prolongation of life, — facts observed by physician and friends, and (2) by the satisfaction expressed by the patient himself. The arguments for and against operation in cancer of the breast apply to operation upon cancer of the stomach or of the intestines. It is certainly not justifiable in cases of breast cancer to deny the patient the twenty-five or more chances in a hundred which the modern operation surely gives. Is it justifiable to deny the patient with cancer of the stomach a chance for recovery, — small though it may be? It seems to me that but one answer is reasonable, namely, that with the facts before the patient, and with his consent, the most radical surgical measures are demanded if upon exploration the disease is so localized in the stomach that it can be removed by a broad margin.

The argument in favor of surgical interference that without operation the patient must die — an argument responsible for much unnecessary and unjustifiable surgery — should carry no weight unless the disease is clearly within the margins of a possible dissection. Operations undertaken in malignant cases anatomically inoperable bring upon surgery nothing but discredit. Operations, no matter how severe and dangerous, undertaken with a distinct possibility of benefit or of complete cure, cannot but elevate the art of surgery, even if they are but rarely successful. Not to give the willing patient a chance of recovery in cancer of the stomach, of the intestine, of the rectum, of any operable region, is to give up the fight without a blow.

Dr. Whitney's report is as follows:

The stomach is contracted, measuring 16 by 20 cm., and is very much hypertrophied, especially in the region of the pylorus. This increase in thickness is general, and diminishes gradually to the cardiac end. The inner surface is reddened and irregularly elevated, but without any distinct tumor. The mucosa is not movable, and to the eye the thickening appears chiefly in the submucous layer, which is dense and fibrous.

The microscopic examination made from different places along the line (greater curvature) in which it had been opened shows the fibrous submucous tissue increased in density, with large numbers of lymphoid and plasma cells scattered through it. This can be followed between the bands of the muscular fibres, which seem also to be hypertrophied.

The mucous membrane is in places of normal thickness and in others diminished. In one section in a small area the glands are atypical, solid, and appear to be extending into the submucosa. Close to this is a lymphatic, which is filled with relatively large round cells, suggesting a new growth.

As far as this examination goes, the diagnosis would be cancer with a diffuse submucous hypertrophy, — a condition which is commonly recognized as scirrhous cancer of the stomach.

NOTE. — October 16, 1898: examination by Dr. Brewster. About two weeks after the last examination the sinus re-opened and discharged a bile-colored fluid. About two weeks ago the sinus closed again. During this time several sutures came away with some pus. The sinus has now been healed for two weeks and the patient has begun to regain the strength that she lost some four weeks ago. The most troublesome symptom is distress after eating. At times she finds it hard to swallow food. Her diet consists of broth, eggs, milk, bread and butter, black bean soup, small pieces of meat, string beans and shelled beans. She has five meals a day. She has gained a great deal in strength, and though she has not gained in weight, she looks well. The bowels move without laxatives and the movements are formed.

THE RESTORATION OF A LOWER EYELID BY A NEW METHOD.

BY GEORGE H. MONKS, M.D., BOSTON.

I RECENTLY had a case at the Boston City Hospital where as a result of operation for malignant disease it was necessary to supply a new lower eyelid. I employed a method quite new, so far as I know, in many of its details, although the main principle upon which it rests was originally suggested to me by an article by Dr. Theodore Dunham, of New York, recommending the use of flaps from the scalp for covering certain

facial defects.[1] Dunham had a patient with a large defect in the side of the nose and cheek, which defect he covered with a long flap taken from the scalp. He took care that the flap should include the anterior branch of the temporal artery and the veins with it.



Fig. 1.

Some days later when the flap had firmly united to the edges of the defect he dissected out the vessels in the pedicle and buried them beneath the underlying skin of the cheek, after which he returned the skin and other tissues of the pedicle back to the place they came from in the forehead. The flap itself continued to be nourished by the vessels of the pedicle buried beneath the skin of the cheek. This ingenious operation, suggested and first employed by Dunham, is of course only applicable to persons who are bald over that part of the scalp where the artery runs.

The patient to whom I referred at the beginning of this article was sent to me by Dr. E. E. Jack. The


Fig. 2.

man had an epithelioma on both lower eyelids. He was especially desirous that the one on the right side be entirely removed, as it was the larger of the two, and was growing quite rapidly.

[1] See Annals of Surgery, 1892.

When it came to the operation I found that the disease had extended backwards well into the soft tissues below the eyeball, and I therefore found it necessary to remove not only the entire lower eyelid but also a good deal of the tissue in the immediate vicinity, leaving a large defect under the eyeball. I had determined beforehand, as the man was bald, to make a new lower eyelid out of a small bit of the scalp, and to utilise the anterior branch of the temporal artery to nourish it, as Dunham had suggested, but in a somewhat different way.

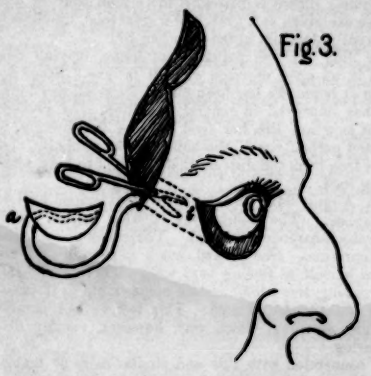
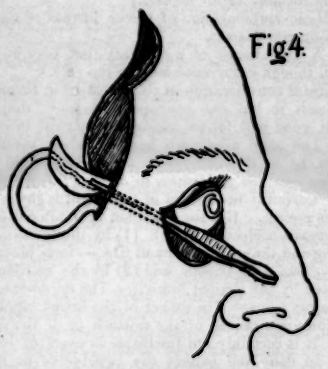


Fig. 3.

Having ascertained by pulsation the exact course of the artery in its whole extent, I then marked out with the knife near the end of the artery a crescentic piece like a lower eyelid, but a little larger. I further marked out — also with the knife — a straight line indicating the general course of the artery from the temple to the new eyelid (see Fig. 1).


Fig. 4.

The subcutaneous tissues containing the artery, veins, etc., were now dissected out up to the new eyelid (see Fig. 2), so that they were completely freed from the underlying tissues. The eyelid comprising the entire thickness of the scalp was then cut out,

great care being used lest the vessels of the pedicle be injured at a point where they joined the eyelid. I now had hanging from the region of the temple a long pedicle of subcutaneous tissue containing the artery, and attached to the end of it a crescentic bit of tissue of the full thickness of the scalp and covered with skin (see Fig. 3, *a*). All through the long pedicle and in the new eyelid at the end of it the beating of the artery could be distinctly felt.

From a point of the temple, near the proximal end of the pedicle, I now tunnelled under the skin with the scissors until I reached the defect under the eyeball, left by the removal of the lower lid. This subcutaneous tunnel is shown in Fig. 3 (*b*). The new eyelid was then drawn by forceps through the tunnel (see Fig. 4), brought into the gap beneath the eyeball, and stitched in position (see Fig. 5.)

The new eyelid was now in proper position and covered the defect entirely. I had little fear that it



Fig. 5.

would slough, for, even when it was in place, the strong pulsation across it from end to end was sufficiently reassuring. The wound in the scalp was sewed up, with the exception of a small area at the upper end of it, which was left to granulate.

The eyelid did not slough, but healed kindly in its new bed. Subsequent contraction caused some bulging of the flap and also a slight displacement outwards, the latter being due to extreme contraction of the pedicle; but as a whole I think the operation was successful, for the flap completely and permanently filled up the gap, while the scarring of the face was insignificant. I do not know whether there has been any recurrence of the epithelioma, for the man left the hospital about six weeks after the operation, and I have not seen him since.

THE CHICAGO SOCIETY OF INTERNAL MEDICINE. — At the regular meeting of the Chicago Society of Internal Medicine in conjunction with the Chicago Medical Society, Wednesday evening, October 19, 1898, the following subjects were discussed: Dr. Adolph Gehrmann, "The Results of Widal's Test in the Diagnosis of Typhoid Fever from Dried Blood Specimens"; Dr. J. M. G. Carter (Thesis) "The Treatment of Typhoid Fever, Based upon a Study of Seventy Cases."

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR Meeting, Friday, February 11, 1898, DR. C. B. PORTER in the chair.

DR. JAMES C. WHITE gave the following cases:

ALEPPO BOIL.

This little boy is an Armenian. He is the only child who escaped with his mother out of a town where a massacre took place. He has come into the out-patient department on account of an acute inflammatory process of the scalp; but he presents also upon his face appearances which are of great interest, inasmuch as they are the permanent remnants, the cicatrix, of an affection very common in Armenia, as it is in other parts of the central and southern parts of Asia and along the Mediterranean coast, namely, aleppo boil, Delhi boil, Biskra, or furunculus orientalis, as it is variously called. As you know, there are now a good many Armenians here, and we have already seen quite a number of instances of this affection in this stage. It is an infectious disease, occurring at all ages, especially in children, and affecting chiefly the parts exposed — hands and face — in the form first of a single small papule, becoming slowly pustular, and then denuded of its cover and forming a crust; the crust remaining adherent a long time, whilst beneath it a destructive process goes on, and the lesion spreads laterally, until, by the growth of a single one or the confluence of many in the same area, it affects large portions of the skin, sometimes forming a cicatrix more than an inch in diameter. It is inoculable and often affects several members of the same family, but the infective element has not yet been positively determined. Several cocci have been discovered in it, but the cultures of them are not inoculable, as the materials which are found in the discharge from the sore are.

This condition is especially interesting because the scars, which last through life, are very deep and large and disfiguring in character, and are very likely to be interpreted as the results of a syphilitic process. It will be well to remember, therefore, that we are getting here a considerable number of these scars on different parts of the body in representatives of this nation. This patient shows very well indeed the character of the lesion, but it is not so deep as several we have seen are.

HYDROA ESTIVALE OR VACCINIFORME.

I show you also two extraordinary examples of a rare affection. These children were brought to me a year ago. As you will observe, their faces and extremities are thickly occupied by more or less circular cicatrices varying in diameter from an eighth of an inch to an inch. You will notice also some of the primary forms of lesions which always terminate in these scars, namely, large vesicles and bullæ.

The disease began in the girl, now ten years old, according to the mother, at the age of eight months, in the month of December, with crops of water-blisters upon the face, lower legs and lower arms mostly, which succeeded each other continuously until the following April, when they entirely ceased to appear. This occurrence has been repeated yearly since then,

the eruption beginning in November and disappearing in April. Her general health has remained good throughout. Please notice the deeply pitted condition of the ears and the central face, and the confluent and larger scars upon the extremities.

The other patient, the brother, is two and a half years old. The affection manifested itself first in him, the mother states, after an attack of chicken-pox in the month of April following his birth, in the form of pimples and water-blisters, becoming running sores and scales, upon the buttocks, lower legs and feet, lower arms and hands, face and ears. In December there was a period of quiescence, and since then there have been repeated terms of activity in the disease of great intensity. At present you will see very few fresh lesions, but will observe the scars upon the face like those from small-pox, the notched condition of the ears and alæ of the nose, and the larger deforming cicatrices upon the extremities.

In connection with these cases it is of interest to note that another brother had, when six months old, an eruption upon the face, arms and legs, described by the mother as similar to these, but he died three months later of pneumonia. There are five other living children in the family, all in good health.

The early forms of lesions in these exceptional cases resemble those of erythema multiforme, and dermatitis multiformis or herpetiformis (Duhring), but considering the whole course of the process, especially the marked scarring, they must be classed as exaggerated instances of hydroa vacciniforme, or estivale. Ordinarily this disease affects boys rather than girls, and is active only in summer, but the deviation in our cases from these general rules are not without precedent. McCall Anderson has recently reported the presence of a modified hematoporphyrin in the urine of two adult brothers affected by the disease. Professor Wood has kindly made an analysis of the urine of this boy, but found none of that substance present.

DR. RICHARD C. CABOT reported a marked increase of eosinophiles in the blood, 8.2 per cent.

DR. C. B. PORTER reported the following cases:

ECTOPIC GESTATION. — TWINS. — OPERATION.

CASE I. I will show first to-night a specimen from a case of ectopic gestation sent to me by Dr. Moulton, of Lawrence. The history, briefly, is as follows:

Married eighteen years. Within three years of marriage had two children. Since that time thirteen years sterile. Regular till three months ago, which was her last menstruation. Since then up to one month ago there has been a slight bloody discharge, some mornings nausea, has passed some clots, had pain most severe low down in the back. Two weeks ago took to her bed on account of pain and weakness.

Bimanual examination showed uterus slightly to the right; the left cul-de-sac filled by a mass the size of a small mandarin orange behind the left broad ligament. Outline smooth. No fluctuation. Depth of uterus two and three-fourths inches. Diagnosis of probable extra-uterine pregnancy.

Operation. — The peritoneal cavity was opened through the rectus muscle. The tumor was the enlarged fimbriated extremity of the Fallopian tube. This was removed without rupture, a ligature having been placed on distal side of ovary. No bleeding and the abdominal wound was closed with four lines of suture. The recovery was without incident. The tumor was hardened by Dr. Whitney and on section, had an embryo in each half. Specimen shown.

INTESTINAL RESECTION FOR CURE OF FECAL FISTULA FOLLOWING OPERATION FOR APPENDICITIS.

CASE II. Operation. Patient, female, age twenty-six; had been sick three weeks, when she was operated upon by Dr. J. W. Elliott, who found the abscess wall friable and intestine ruptured. Cavity was cleansed and drained. Wound partly closed at each end.

Patient did well, but a large fecal fistula remained with a gap in the abdominal wall three inches long and one and a half wide. Four months afterward the wound was at a stand-still and I operated as follows:

The wound was surrounded by an incision one-half inch from the border through the skin; this dissected up until the edges could be stitched together to prevent any escape of feces. Then the peritoneal cavity was opened above the wound towards the umbilicus. With a finger in the cavity guiding the operator, the cicatrix containing the fistula was dissected out, downwards towards the pubes. Here it was found adherent to the bladder and uterus. With a sound in the bladder as guide, this was freed and then the uterus, the parietal wound being five inches long. This allowed the ball of intestines to be brought out of the wound, the peritoneal cavity was walled off with gauze, the stitches which temporarily closed the fistula were removed and the intestines freed from each other, when it was found that two inches of the ileum must be resected. This was done and the gut united by end-to-end suture. The mesentery was tied off with animal tendon. Around each end of the intestine was placed a running suture of fine catgut through all the coats. Then a continuous stitch of fine catgut united the ends and this was reinforced by Czerny-Lembert stitches of fine silk. The field of operation was cleansed and the loop dropped into the peritoneal cavity, the omentum brought down over the intestines and the parietal wound closed with silver wire. There was some pain, nausea and vomiting on the following day, but otherwise the convalescence was uneventful and the union perfect.

THREE CASES OF FRACTURE OF UPPER END OF HUMERUS WITH DISLOCATION OF HEAD.

CASE III. I will show as rapidly as possible three cases. This patient came for the relief of pain which was produced by the pressure of the head of the bone upon the brachial plexus. A vertical incision was made over the bicipital groove. The bone was brought into place with a powerful tenaculum, but was followed by a most profuse hemorrhage. It was a gush which was really alarming and the whole wounded surface was stuffed with sponges. At the time, of course, all the gauze was blood-stained, and after waiting some time with the pressure applied, the sponges were taken out, and as I supposed, all. It was found a considerable time afterward in investigating the wound as to why it did not heal, that a piece of gauze was left in the wound. That was removed and the silver wire which wired the fragments together and then it healed to only a very small fistula from which there was scarcely any discharge. Still there was this annoying delay and a week ago Saturday I operated, went down to the parts and took out the head of the bone which was soft and mushy and undoubtedly

would be of no service, and that I hope will end the trouble. [Since time of report, wound has filled up rapidly and it is now practically healed. No pain and good motion.]

Case IV. Seven weeks before this patient came she fell and met with the same accident, a fracture of the upper end of the humerus with a dislocation inwards. She came for relief from pain. She had not been able to sleep from the constant pressure of the head of the bone. I decided to remove the head of the bone. After the operation the relief was so great that she slept for nearly twenty-four hours. She has made a very fine recovery. She was operated on October 8th, and since that time she has been gradually getting back the power in her arm. For some reason, most probably pressure of the head of the bone upon the vessels, she had considerable edema, but that is disappearing under massage.

Case V. Eight weeks before this man came to the hospital he was on a vessel loaded with granite and in very rough weather, and was finally obliged to take to the boat as his vessel was sinking, but as he was getting into the boat, he was struck by a swinging derrick and knocked into the sea. One of his comrades did get into the boat, and finally, as he was going down the second time, his comrade grabbed him and rescued him from drowning. He came with fracture of the upper end of the humerus, the head dislocated inwards.

Incision from acromion downward three and a half inches; union with articular surface facing downward and outward; upper fragment removed. In lifting it from its bed and taking it out, the tendon of the long head of the biceps was divided. That was afterwards sutured, the wound closed with provisional sutures and drain. These were tied on the fifth day. He made a most excellent recovery. He left the hospital the first day of January, twelve days after operation. Five weeks after operation he could flex forearm to nearly normal amount.

Amputation of Whole Upper Extremity Including Scapula.

Case VI. This man nineteen years ago noticed a small growth on the base of the thumb. This gradually increased and was curetted from time to time. It finally involved the whole hand. The forearm was amputated at middle the 14th of October. It was a case of malignant disease, probably in the beginning senile keratosis, and the disease returned subsequently in the scar itself, above the elbow, invading the glands of the axilla and there seemed to be nothing to do but an amputation of the whole upper extremity, that is, the arm and the scapula.

Operation. I first removed the middle of the clavicle, exposing the subclavian vessels; the artery and vein were each ligatured twice and divided between. The incision which exposed the subclavian was then carried outward over a portion of the deltoid and downward to the anterior border of axilla, the skin flap dissected inwards exposing the pectorals which were both removed. Then from the same points above an incision was made outward, backward and downward to the posterior border of axilla and then forward to meet the anterior one. The skin was reflected toward the mid-line and the trapezius was then divided, the subclavian, omo-hyoid and brachial plexus, the omo-hyoid, levator anguli scapulæ and the two rhomboids. The extremity was then attached only by the serratus magnus and latissimus dorsi which were divided with one stroke of the knife. There was little blood lost. The whole field of operation was then cleaned of pieces of muscle, glands, etc., and the brachial plexus divided higher up to avoid implication in the cicatrix. Wound closed by anchor sutures of silkworm gut and continuous fine catgut.

On the Saturday following he was shown in the amphitheatre with the wound all healed, and now it is not two weeks till to-morrow since the operation was done, and he is, as you see, in pretty good condition.

Acute Pancreatitis.

Dr. J. W. Elliot: This man is supposed to have had an attack of acute pancreatitis and he is here for further observation. Four weeks before he came he had an attack of pain in his stomach region with a rise of temperature and vomiting. He came with a temperature of 103° F., with a prominence just below the stomach or just behind the stomach and to the right. This was considered to be either an acutely inflamed gall-bladder or an acute pancreatitis. The diagnosis was made on the presence of the tumor and the acute symptoms; it seemed as if the abscess must be in the lesser omental cavity. I made an incision rather to the right of the median line in order to cover the chances of gall-bladder. I passed the gall-bladder and found a cake of adherent mesentery, intestines and stomach and having walled off with gauze I pushed my finger into the lesser omental cavity and there came out in quantity a pus with greasy, fatty fluid. That was drained in the ordinary way. He now has a fistula which discharges straw-colored fluid. Dr. Pfaff has examined it and does not feel certain that it is pancreatic, but most of the gentlemen who have seen the case think it is pancreatitis as the fistula goes into the lesser omental cavity and the fluid could scarcely come from any other organ. He has come for observation to have his feces and urine examined. One of the interesting things about it is that before this attack he felt acute and shooting pains along the border of the left ribs. He mapped out practically the whole line of the pancreas in showing where these pains were.

It is obscure and interesting. I shall report the case more fully when it is all settled and we know more about it.

It will be the second recorded case of pancreatitis recovering after drainage of the abscess.

Ambulatory Typhoid and Laparotomy for Intestinal Perforation in Typhoid Fever.

Dr. Fitz: Two cases of *typhoid fever* in my wards have presented features of unusual interest to which I will call attention. The first patient entered on the surgical side to be operated upon for piles. Dr. Beach found the temperature elevated, and therefore thought it desirable to postpone the operation until the temperature should become normal. Soon after this occurred the temperature rose again, and it was thought that there might be some complication requiring medical consultation. At the time I saw him the temperature chart showed so typical a curve that it seemed likely that typhoid fever was present. The Widal reaction proved positive and he was transferred to the medical side. As is to be seen, the range of temperature is that of a typical relapse of typhoid fever and the patient is now in a condition of perfectly normal

defervescence. The interesting point is that he was out and about, an ambulatory case of typhoid, for three weeks before he came to the hospital, which he entered to be operated on for piles. Previous to his entrance and during his early stay in the hospital he was given house diet, despite which his case remained so mild that he presented no symptoms of any particular inconvenience.

The second case is one of *typhoid perforation* of the *intestine*. The patient came into the hospital after having been sick a few days, and during the first fortnight of his stay, although seriously ill, showed no indication of any particular complication. Then, as is to be seen from the chart, the temperature suddenly fell four or five degrees, the respirations and pulse increased in frequency, but even then there was very little discomfort.

In the right half of the abdomen, however, below the navel, there was a certain amount of tenderness which persisted and spread a little on the following day. It was evident that a peritonitis was beginning and, considering the nature of the disease and that the peritonitis was spreading in the right lower quadrant of the abdomen, it seemed probable that there was either a perforation of the intestine existing or threatening or that a necrotic mesenteric gland was the source of the peritonitis. In 1891 I considered the subject of perforation of the intestine in typhoid fever in a paper read before the Association of Physicians. I was able to collect at that time but ten cases in which early laparotomy had been performed for the relief of this complication at the height of the disease. In only one of these was a successful result obtained, and the account of this case was so incomplete that it was of but little value as a precedent. The opinion was then expressed that perforation into the free abdominal cavity in typhoid fever resulting in a diffuse peritonitis was not likely to be successfully treated by immediate laparotomy. The patient's condition was usually such at the time of perforation in the third or fourth week of the fever that it was doubtful if the patient could recover from the operation and that laparotomy for such a complication was likely to prove successful only under the most favorable circumstances. Since that time a number of operations have been done, but the majority of those which have proved successful have not fulfilled the conditions as stated. The cases have been those of perforation resulting in circumscribed peritonitis, or of perforation during relapse when the opportunity had taken place for the patient to have rallied considerably, and in one instance an operation was done when the patient was up and about. Dr. Watson, for example, operated on a patient at the City Hospital in the seventh week from the onset of the fever, when he had rallied from the immediate effects of the disease and the peritonitis was sharply limited. In the above-mentioned communication I collected 29 cases of peritonitis in typhoid fever irrespective of its immediate method of origin; three recovered after operation, 17 ended in resolution and nine in the spontaneous evacuation of pus. In 1896 Dr. Armstrong, of England, made a collection of 23 cases of laparotomy for perforation with four recoveries. Dr. Finney in 1897 tabulated 52 cases with 17 recoveries, but in neither of these series of cases does that sort of criticism appear which will aid the judgment in determining whether in a particular case an immediate operation gives more chances for the recovery of the patient than its avoidance. In the case now called to your attention the conditions were unusually favorable. The man, although quite sick from the typhoid, was not prostrated by the peritonitis, the pulse remained good after the first fall of temperature, respirations came to the normal and he was taking his nourishment well. There was so little constitutional disturbance that the day after the fall of temperature there was nothing to indicate there had been any particular disturbance. At the same time, realizing that a peritonitis had occurred, and that it was probably from perforation, I asked Dr. Beach to see the case with me and we both agreed that an immediate laparotomy was desirable. Dr. Beach operated and he will speak of the results of his treatment. Transferred to the surgical service.

OPERATION BY DR. BEACH.

December 9th. An incision of eight inches was made in the median line, permitting the escape of gas and thin fecal fluid from the peritoneal cavity. The same fluid was found in both glands and in the pelvis. There were numerous flakes of fibrin, some so loosely attached to the intestine as to be easily removed. The presenting coil of small intestine was first carefully inspected for perforations and the examination continued along the intestine until within a short distance of the cecum, where an ulcer was found with liquid feces pouring from it. It was closed by fine silk Lembert stitches at right angles to the axis of the gut to avoid any narrowing of its lumen. The abdominal cavity was washed out with hot boiled water, and tightly closed with silkworm-gut sutures. About a pint of normal salt solution was left in the cavity; foot of bed raised and one-twentieth grain strychnia; whiskey thirty minims and tincture digitalis twenty minims subcutaneously; time of operation thirty minutes; no vomiting after ether. The temperature, which on the morning before operation had been 103°, fell to 99° that night. It rose to 101.3° on the following morning and by that night reached 104°. It averaged 102°, after the operation reaching 105° once. Pulse variation was from 100 to 115 at 7 P. M. On the night of operation four grains of calomel; small quantities of milk and lime-water at short intervals afterwards. Half an ounce of whiskey every six hours.

December 10th. Liquid diet; stimulant continued; foot of bed lowered; no distention; patient comfortable.

December 11th. Suds and glycerine enema with fair result; three ounces of blood; stop everything for six hours. Later another movement with same amount of blood; another movement later without blood.

December 12th. Liquids eleven ounces; movement of bowels without blood.

December 13th. Two bloody movements, three ounces.

December 14th. One bloody movement, one ounce of decomposed blood.

December 15th. Dressing done, contamination with hands (?); has stitch abscesses; rather more stupid; small amount of blood at 5 P. M.; no feeding during the night.

December 16th. Brighter and better; wound dressed; stitch abscesses cleaned; taking nourishment well; no blood in stools.

December 17th. Night nurse reports that whenever he drank anything he put his hands on each side of the abdomen and complained of a pain extending from

side to side. Reported later for sweating, bad pulse, pallor and drawn features. Under ether, Dr. Beach removed all sutures and cleaned the superficial part of the wound by repeated washing with peroxide of hydrogen. Then opening the deeper part of the wound exposed the peritoneal cavity and from it removed about a pint of dark-colored fecal fluid which had in part poured out of a large ulceration found at the head of the cecum. The new perforation was sutured with a continuous Lembert stitch. The softened and inflamed condition of the gut added much to the difficulty of operating. The site of the former suture was found in good condition. The peritoneal cavity was flushed with hot water and the wound closed with a gauze drain leading to the point of suture. Foot of the bed was elevated and stimulation with nitro-glycerine, strychnia and digitalis employed. He continued to fail and died in the latter part of the afternoon. The post-mortem showed many ulcerations in the lower three feet of the ileum and the ascending colon. A large necrotic area in the cecum and foul peritoneal fluid.

(To be continued.)

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

MILIARY TUBERCULOSIS OF THE SKIN AND THE CONTIGUOUS MUCOUS MEMBRANE.

Kaposi,[1] who has not yet given his adherence to the universally accepted view that lupus vulgaris is a form of cutaneous tuberculosis, has always based his objection partly upon the fact that there is a morbid process of the skin that corresponds absolutely with miliary tuberculosis of the internal organs, and in its clinical characteristics is totally different from similar processes, especially lupus vulgaris and scrofuloderma. Cornil and Ranvier seem to have been the first to mention this form of tuberculosis upon the skin, although its existence upon the mucous membranes had been recognized previously. Chiari was the first to give a careful histological description of the form, from five cases that he had observed post-mortem. Jarisch was the first to describe it clinically. Kaposi thinks that many of the cases reported do not properly belong under this heading. Twenty-two cases of this miliary tuberculosis of the skin have been observed at the Vienna clinic since 1879. Of these 22 cases 18 were in men and only four in women, while the age varied from twenty-eight to sixty years. The beginning of the affection dated back only a few weeks or months in at least a third of the cases, in the others at the most three or four years, so that the development was on the whole pretty rapid. More than one-half of the cases terminated fatally in the hospital, and showed at the autopsy tuberculosis of the internal organs. In eight cases the affection was limited to the skin, in eight cases it was equally distributed upon skin and mucous membrane, and in six cases it was chiefly upon the mucous membrane with implication of the skin of the contiguous parts. The favorite seats of the lesions upon the skin were the lips and nostrils, upon the mucous membranes the cheeks, palate and gums.

Clinically the characteristic features are most marked in the ulcers. The ulcer is a shallow loss of substance with small serrated edges, as if "gnawed-out," pale red border and floor, very superficially infiltrated, covered with a viscid secretion, and exceedingly painful. Very often small raised nodules, similar to a comedo or milium, are seen at the edge of the ulcer, which break down and increase the size of the lesion, giving it its serrated edge. These represent true miliary tubercles, but are often not seen at certain stages, especially when they appear singly and break down rapidly. In many of the cases tubercle bacilli were found in the secretion, in the tissue curetted, in preparations of the excised edges, or in the tissue of the excised nodules. In other cases they could not be found, and this was undoubtedly when the miliary nodules were quickly eliminated from the inflamed tissue adjoining. In some instances the tubercle bacilli were only seen at times, but the characteristic appearance of the ulcers that has been described was considered sufficient for the diagnosis. The ulcer is to be differentiated from an epithelioma by the absence of the hard, glistening epitheliomatous nodules of the edge, and by the absence of the hard base; from lupus by the absence of the vivid red, easily bleeding floor, by its painfulness, "gnawed-out" edges, and by the absence of lupus scars, lupus nodules, etc.

The prognosis of this form, considered locally, is not so unfavorable as one might think. Kaposi believes it is not so unfavorable as lupus vulgaris. It sometimes disappears spontaneously, leaving a scar. Therapeutically, the ulcers may be healed by means of cauterisation, excision and other procedures adapted to the individual case.

The tuberculous ulcers of the mucous membranes have been recognized much longer than the miliary form upon the skin. They occur upon the mucous membrane of the lips, cheeks, tongue, hard and soft palate, nose, and more rarely on that of the vulva, vagina, urethra and bladder. The affection very often spreads progressively from the mucous membrane to the adjacent skin. Occasionally one sees disseminated follicular lesions on the tongue, cheek and gums in the form of small red nodules, with later a pustule at the tip. These are very painful and are often scattered about at some distance from a miliary ulcer. Provided the internal tuberculosis is not too far advanced the prognosis of this form upon the mucous membranes is not very unfavorable. The writer's conclusions (which accord with, but do not on the whole add much to, our present knowledge of this form) are as follows:

(1) Miliary tuberculosis of the skin, or true cutaneous tuberculosis, is a form well characterised clinically, and is to be separated from lupus and all other forms of the so-called tuberculous affections of the skin.

(2) It is more common than has hitherto been assumed.

(3) It is almost universally found in individuals who are suffering from tuberculosis of other parts, mostly of the respiratory organs; but not solely, as has been maintained, in the last months of life, nor with miliary tuberculosis of internal organs.

(4) The cutaneous tuberculosis is very often accompanied by the same affection of the contiguous mucous membrane, but it often also exists alone.

[1] Archiv. f. Derm. u. Syph., 1888.

(5) The affection of neither skin nor mucous membrane is to be regarded as absolutely hopeless from a prognostic point of view, as it sometimes heals spontaneously and is sometimes cured by appropriate topical treatment.

The writer adds a complete and valuable record of the 22 cases that have been observed in the hospital at Vienna. [It will be conceded by all that this miliary tuberculosis of the skin is to be regarded as a well-defined clinical and histological type. Its recognition, however, does not in the smallest degree prejudice the generally accepted view that lupus vulgaris and certain other forms of cutaneous lesions are also caused by the same pathological agent. — REP.]

TREATMENT OF THE PRURIGINOUS DERMATOSES WITH GELATINE PREPARATIONS.[3]

Pick conceived the idea of incorporating chrysarobin and pyrogallic acid in gelatine in the treatment of psoriasis. The advantages of this method were its easy application after warming, its distribution in thin layers, and the formation of an even, firmly adherent covering when cool, which was not removed by rubbing, and which did not soil the linen and clothing. It could also be removed easily by a warm bath. In this way the advantages of an ointment and of an alcohol-ether varnish were combined. Later Pick improved the gelatine dressing by the addition of a small amount of glycerine which added to its suppleness. Thibierge has used the gelatine preparations extensively in the treatment of rebellious pruriginous affections.

Jacquet has shown that in individuals who suffer from prurigo, urticaria, or the vasomotor disturbances that accompany pruritus, protection from contact with the air by means of a dressing of absorbent cotton alleviates the itching to a marked degree, and causes the disappearance of the accompanying lesions of the skin. Analogous to this is the fact brought out by experiments on animals that the lesions and changes in the skin and mucous membranes that follow the cutting of nerves can be avoided if the territory deprived of its nerve force is protected from outer influences and injury. Hence it is argued that in the case of many of the dermatoses that are accompanied by pruritus, the pruritus plays the chief rôle. In prurigo Hebra, and in its atypical forms, the scratching is an important element. A complete covering which protects the epidermis, hinders the scratching, and thus removes one element of the affection, and it also protects against contact with the air.

The formula that Thibierge has found the most valuable is the following:

Gelatine		150 grammes.
Grénétine		100 "
Gomme arabique		50 "
Glycerine		"
Eau bouillie	aa	300 "
Oxyde de zinc		100 "
Phenocalyl		2 "

Against the complicated nature of this formula Thibierge urges that whenever he has departed from it the gelatine has lost in greater or less degree some of its important properties. The covering which this preparation of gelatine makes will remain adherent for eight or ten days in the hottest period of the year. The preparation is liquified by immersion in hot water, and is applied with a broad brush. It is best to give beforehand a warm bath with soap, so as to remove every trace of fat. Several layers of this gelatine are to be applied to the part affected with pruritus. Before the layer is thoroughly dry it is to be dabbed with a large wad of absorbent cotton. This facilitates the even drying of the gelatine, which is completed in from ten to fifteen minutes. When dry there is no unpleasant feeling of contraction, which the most of the varnishes and collodium produce. When only small areas are to be covered, it is often much simpler to spread the gelatine on muslin, forming thus a sort of plaster. This may be softened by dipping it into warm water.

The gelatine covering is allowed to remain for several days. When it has become chipped and broken, it is better to employ an entirely new dressing than to try to repair the old. The best means of removing the gelatine covering is a hot bath, or washing with hot water when only a small portion of the body is being treated. The feeling of refrigeration after the application of the gelatine is a constant phenomenon, and more marked the larger the surface treated. No evil effects upon the health were observed, even when the skin of the whole body was covered by the gelatine. Nevertheless, Thibierge believes that the whole surface should not be covered in the case of cachectic individuals whose secretion of urine is impaired, nor in the case of small children.

In all papular and lichenoid affections, and where there is a diffuse infiltration of the skin, the appearance of the skin is found to be greatly improved when the gelatine covering is removed. In any affection in which exudation occurs however, the eruption is made much worse. The best results are obtained in the prurigo of Hebra. The intensity of the pruritus in the majority of cases, the frequent disturbance of sleep, and the relative inefficacy of most other internal and external treatments make the quick lessening of the pruritus under the gelatine applications especially remarkable. It naturally does not effect a permanent cure, and must be looked upon as a palliative measure to be resorted to whenever there is a new outbreak. In pruritus dependent upon renal and hepatic disease, as well as in senile pruritus, good results are obtained with the gelatine. In chronic urticaria no benefit was derived from it. Thibierge concludes that gelatine preparations are of great value in the treatment of numerous pruriginous dermatoses, and represent a real advance over most of the methods previously in use.

TREATMENT OF SCLERODERMA BY ELECTROLYSIS.

Brocq[4] first attempted to treat isolated plaques and bands of scleroderma by this method in 1887. In the case of a man of fifty who had a band of scleroderma over the loins and lower abdomen, a great improvement was produced up to the time the patient was lost to view. In this case, the patient was treated at the same time with counter-irriation over the spinal column, mercurial plasters over the lesions, and iodide of potash internally, so that it was possible that the improvement was due quite as much to one or all of these agencies as to the electrolysis. He was induced, however, to try this method in other cases, and comes to the conclusion that the electrolytic current produces a real curative action on scleroderma in plaques and bands. It almost always happened that the progress of the affection was checked after two or three sittings. The first few applications seem to have a marked

[3] Thibierge: Archiv. f. Derm. u. Syph., 1898.

[4] Annales de Derm. et de Syph., February, 1898.

effect, which is not so apparent later on, so that the plaques disappear very slowly, sometimes in a progressive way, sometimes with longer or shorter intervals of arrest. It is difficult to say whether it is best to continue the sittings of electrolysis regularly, or to confine them to the periods when improvement has ceased. It is probable that mercurial plasters used in the intervals between the sittings hasten the resolution of the plaques. In eight cases out of nine Brocq succeeded in modifying or completely removing the affection. It was shown that in some cases the curative action of the electrolysis continued for several weeks after the last operation. It was also found that the electrolysis never produced a caustic or destructive action. Its effect is not produced at the point of contact, as parts of the lesion that the needle has not touched are seen to disappear, and in the case of subjects who have multiple plaques, lesions that have not been directly acted upon by the current are influenced favorably. On the contrary, when one has destroyed the tissue too much at each puncture, there are no better results as regards the disappearance of the lesion, and cicatrices are left. The single needle is much preferred to a combination of needles, as it can be so much better controlled. The manner of operating is very similar to that employed in the destruction of hair. The needle is attached to the negative pole, while the positive is held in the patient's hand. The intensity of the current is determined both by the subject and the degree of infiltration of the tissues. In children one-half to two milliampères are sufficient; with courageous people five to ten milliampères may often be reached. When the tissues are very hard and infiltrated, the current must be passed a much longer time, in order to obtain a good effect. The needle should be withdrawn when a dark circle about the point of contact shows the tissue has begun to be decomposed. It is important here, as well as in the destruction of hair, not to make two insertions of the needle near together. If the plaques of scleroderma are very thick, the needle should be introduced perpendicularly to the surface of the integument, while in cases where there is little infiltration it is better to introduce it obliquely. The séance is repeated when the small lesions produced by the electric needle seem to be healed. Usually the operation is repeated on the same place, about once a week. If properly performed no accident can happen. Serious destruction and scars can only be produced by too strong currents. Hemorrhage never occurs.

(To be continued.)

AMERICAN NEUROLOGICAL ASSOCIATION.

(Continued from No. 15, p. 374.)

TWENTY-FOURTH Annual Meeting held at the New York Academy of Medicine, May 26, 27 and 28, 1898.

CONGENITAL FACIAL DIPLEGIA.

DR. H. M. THOMAS, of Baltimore, reported the histories of two brothers, twenty-one and nineteen, who showed this remarkable defect. The family history was unimportant except that the mother's aunt had given birth to a deformed child and that the mother herself had had a baby with a deformed foot. The birth of the elder boy was difficult, but no instruments were used. That of the second boy was normal in every respect. In each case it was noted shortly after birth that the baby was unable to close his eyes and that the lower lip drooped. Except for the facial deformity, the children developed normally. There was nearly complete bilateral facial paralysis, the patients being only able to retract and depress the corners of the mouth. Combined with this there was partial deafness in both ears, and the lobes of the ears were misformed. Movements of the eyeballs were perfectly normal and there was no other abnormality discovered. Dr. Thomas brought these cases into relation with the cases of congenital facial paralysis combined with defect in the movement of the eye-muscles, and with a few cases of uncomplicated unilateral congenital facial paralysis, and less directly with congenital muscle defects in other parts of the body.

In regard to the pathological basis of the condition, nothing definite could be said, as there were no unequivocal autopsies. He believed that it was most satisfactory to assume a mal-development or a non-development of the nuclei from which these nerves arise.

DR. SPILLER referred to the relationship between the condition described by Dr. Thomas and progressive muscular dystrophy of the Landouzy-Dejerine type. In the latter affection the orbicularis palpebrarum and the muscles about the mouth are the ones usually involved, and it may exist for years without atrophy of any other muscles.

DR. SACHS considered the muscular element was very much more at fault than the nuclear. These cases were not necessarily neural in origin, while some of them may be; others will show that the muscular or osseous systems are alone involved.

DR. THOMAS said that the question of the probable relationship between this condition and progressive muscular atrophy was not new. He regarded the symptoms in his case as congenital and expressed the opinion that it would be unusual to see a case of muscular dystrophy of the facial type which dated from birth and persisted until the twentieth year without affecting any other nerves.

DR. FRANK R. FRY, of St. Louis, read the notes of the following case:

MULTIPLE SYPHILITIC NEURITIS.

A man, thirty-two years of age, contracted syphilis in the fall of 1896. A year later he had a sudden right hemiplegia, the face escaping. The paralysis was slight, the patient walking with a hemiplegic gait and retaining considerable use of the hand. The knee-jerk and the wrist-jerk on the paretic side were exaggerated. Three weeks later a paraplegia developed which became complete and was followed by marked weakness of the hands, with hyperesthesia and paresthesia in all the extremities. The knee-jerks were lost, and later there was reaction of degeneration of the muscles of the legs. After eight weeks, improvement began and has been continuous. He has since been able to resume his business. The diagnosis was based on the characteristic sensory symptoms, reaction of degeneration, absent knee-jerks; the extensive distribution and peripheral character of the paralysis, and the manner in which the paralysis and sensory symptoms cleared up leaving no evidence of focal lesion of the central nervous system. It was assumed that the neuritis was due to syphilis because no other cause seemed apparent.

DR. C. L. DANA, of New York, said that his experience with multiple neuritis and with syphilitic affections of the nervous system led him to regard it almost as a pathological law that we never have multiple neuritis from syphilis. In order to prove such a case, every other possible cause of the neuritis must be excluded.

DR. SACHS thought that Dr. Dana had stated the other side of the case too strongly. He was of the opinion that the evidence of a multiple neuritis or peripheral neuritis of syphilitic origin had been fairly well established.

DR. M. A. STARR, of New York, agreed with Dr. Dana and said that although he had been on the watch for a case of multiple neuritis of syphilitic origin during the past ten years, he had never seen one which he was willing to pronounce as distinctly syphilitic.

DR. J. J. PUTNAM, of Boston, and DR. LEONARD WEBER, of New York, held the same opinion as expressed by Drs. Dana and Starr.

HERPES ZOSTER.

DR. LEONARD WEBER, of New York, read a paper upon this subject. He said that the underlying cause may be situated either in the nerve-centre, the ganglion, or the periphery; the latter more frequently than is generally supposed. The disease with its attendant and subsequent neuralgia is the more severe the older the patient. The remedy he had found more potent than any other in the cure of herpes neuralgia is the sulphate of quinine in doses of ten to fifteen grains three times a day, to be continued for a week and longer if necessary. He has also found iodide of potash useful, particularly where there is arterio-sclerosis. He also insisted upon strict cleanliness in dressing the herpetic eruption.

DR. J. J. PUTNAM was inclined to believe that the lesion in these cases was far back — although perhaps not so far back as the ganglion.

DR. SPILLER said that these cases certainly seem to be connected with disease of the nerves, especially of the sensory branches. He did not know of any case where the motor fibres alone were involved.

DR. W. M. LESZYNSKY said that in recent years he had come to regard herpes zoster as one of the symptoms of a peripheral neuritis. For the purpose of relieving the acute pain, especially in the intercostal variety, he had found the use of the Paquelin cautery remarkably efficacious.

DR. SINKLER agreed with Dr. Weber's view of the location of the disease.

DR. C. L. DANA believed that in most cases the trouble was in the nerve, probably in the sensory branch and deeply seated.

PURULENT INTERNAL PACHYMENINGITIS COMPLICATING MIDDLE-EAR DISEASE.

This was the report of a case by DR. WILLIAM M. LESZYNSKY, of New York.

The patient was a man twenty-three years of age who had been affected for many years with chronic suppurative otitis of both ears. He complained of pain in the right ear and tenderness over the mastoid region. There were also rigors, high temperature and sweating, indicating a probable infective sinus thrombosis. The mastoid and sinus were explored with negative result. The same symptoms continued unabated, and subsequently he developed increasing hebetude, double optic neuritis, motor aphasia, right facial paralysis and right hemiplegia. There was no disturbance of sensibility. The patient never complained of headache nor were there any other symptoms indicating an acute involvement of the *left* ear. The left temporo-sphenoidal lobe was thoroughly explored for an abscess formation, but none was found. Death occurred twenty-four hours later. The autopsy revealed purulent internal pachymeningitis limited to the dura over the *left* Rolandic region, and softening of the central convolutions on the same side. On the *left* side the tympamun was entirely destroyed by caries, and the sinuses completely disorganized, while on the right side the sinuses were normal. Dr. Leszynsky dwelt at length on the difficulties that so often arise in making a correct localization in cases such as that reported.

DR. E. B. ANGELL, of Rochester, had had under his care a patient whose general symptoms were those of pyemic infection.

DR. G. L. WALTON, of Boston, said that Macewen had shown that temporo-sphenoidal abscess, extending inward, affected first the leg, then the arm and finally the face, extension upward following the inverse order. In the case under discussion the arm received the brunt of the injury which made the diagnosis more difficult.

SEROUS (ALCOHOLIC) MENINGITIS SIMULATING BRAIN TUMOR.

This was the report of a case by DR. THEODORE DILLER, of Pittsburg.

The patient had been getting progressively worse for six months, presenting during this time severe headache; frequent vomiting attacks; failing vision due to optic neuritis; weak, ataxic gait; loss of knee-jerks; tenderness in the legs and burning in the feet; and finally, general convulsions followed by marked mental changes.

It seemed quite plain that the man was suffering from multiple neuritis due to alcoholism. The ataxic gait, weakness, wasting, and tenderness of legs and burning of feet with diminished knee-jerks were explained by this diagnosis. There remained, however, the headache, vomiting, optic neuritis, convulsions and mental symptoms to be accounted for. These seemed to indicate the presence of a brain tumor, although the fact was recognized that the mental symptoms were very much like those seen in alcoholic multiple neuritis.

The autopsy failed to reveal a brain tumor, but disclosed great dilatation of the pial vessels with a large amount of clear, colorless fluid beneath the pia. There was intense congestion of the pia in several spots. But little more than the usual amount of fluid was found in the ventricles.

DR. W. L. WORCESTER, of Danvers, was in doubt whether the post-mortem findings accounted for all the symptoms.

DR. DERCUM said it was a well-known fact that serous meningitis was very apt to be mistaken for brain tumor.

SECOND DAY. — FRIDAY.

MYOTONIA.

This was the title of a paper read by DR. GEORGE W. JACOBY, of New York.

He considered Thomsen's disease (myotonia con-

genita) a clinical type to which nothing can possibly be added; the term should, however, be limited to the actually congenital cases of myotonia and should exclude all others. For the latter, some other designation must be sought. Better to class all cases under the generic term myotonia and then to subdivide into myotonia congenita, myotonia acquisita, myotonia transitoria. Cases which present only spasm upon voluntary movement, but no myotonic disorder or reaction, should be classed as intention spasm. He related the histories of three cases, two of which had previously been presented to the New York Neurological Society. These cases illustrated the various types of myotonia. From one case in which the disease was acquired at the age of eighteen after an attack of typhoid fever, pieces of muscle were excised and subjected to microscopical examination. Transverse and longitudinal sections gave the microscopical picture of the changes hitherto considered pathognomonic of Thomsen's disease.

Jacoby concludes that the proof of the myopathic nature of this affection derived from examination of excised pieces of muscle is insufficient, and that the changes thus found are due to the abnormal contractility of the muscles in this disease and merely corroborate the clinical fact of this hypercontractility. Whether the hypercontractility is due to a disorder of the muscular or central nervous systems can therefore not yet be stated. The fact that one of the cases here reported occurred after an attack of typhoid fever leads Jacoby to inquire whether such an accidental cause in the form of any acute infection may not frequently be the actual productive agency of the disease, such infection acting upon nerve-cells which are inherently weak.

DR. G. M. HAMMOND, of New York, presented these children, all members of the same family as cases illustrating a myotonic disorder.

DR. THEODORE DILLER, of Pittsburg, said he had examined the first patient referred to by Dr. Jacoby, and there was, in addition to the other symptoms, a distinct spasm of the extrinsic ocular muscles and of the orbicularis palpebrarum.

DR. W. G. SPILLER had seen two cases in which an intention spasm was present.

DR. JACOBY concluded that under the classification of myotonia, only such cases should be included which present certain definite symptoms. In addition to the intention spasm there should be an absence of anything pointing to gross disease in the central nervous system.

AMAUROTIC IDIOCY.

DR. FREDERICK PETERSON, of New York, presented the report of a case with autopsy. The patient was a little over seven months old at the time of death, and was one of three amaurotic idiots in a family of five children. The child presented the usual symptoms of the disease, and died of broncho-pneumonia following measles. There were never any symptoms of organic brain lesion. At autopsy the brain was found to show grossly the usual features of defective development. The pathological changes in the case were limited to the nerve-cells of the cortex and medulla, which were found markedly deficient in number and in development in the occipital region about the calcarine fissures in the temporo-sphenoidal lobes, in the frontal lobes, in the motor areas, in the corpora quadrigemina and geniculate bodies, and in the third and fourth cranial nerve nuclei. The alterations of the chromatic substance of the cells must be referred largely to the general condition of the patient before death and not to the disease under discussion. The lesions in the chromatic substance in the atrophic cells could not be accurately determined. No definite changes in fibres or tracts were discovered.

THE PATHOLOGICAL ANATOMY OF AMAUROTIC FAMILY IDIOCY.

DR. WILLIAM HIRSCH, of New York, read a paper with this title, and reported the case of a child ten months old who had died after being under observation one year. The autopsy was made four hours after death. The microscopic examination revealed very marked changes in all the nerve-cells of the entire central nervous system. Serial sections had been made through the spinal cord, the medulla oblongata, corpora quadrigemina, optic thalmus, caudate nucleus, cerebellum, and through the entire cortex of the brain and not a single normal cell was found. All the nerve-cells were enormously enlarged, the cell-body was swollen, and sometimes three times its normal size. The Nissl granules were dissolved into a pulverized mass. The nucleus with its nucleolus was displaced to the periphery of the body. The processes were very few in number and often broken off. There was degeneration of the pyramidal tracts in the spinal cord and medulla oblongata and atrophy of the optic nerves. The neuroglia and the blood-vessels were perfectly normal throughout the entire nervous system. The clinical evidence as well as the anatomical findings prove that the assumption that the disease consists of an arrest of development is erroneous, but that we have to deal with an acquired disease. The typical change in the nerve-cells and the fact that all the nerve-cells and nothing but the nerve-cells of the entire nervous system are affected, makes it very probable that we have to deal with a toxic condition, with a direct action of some poison on the nerve-cells.

DR. WARD A. HOLDEN, of New York, then made a report on pathological findings in Dr. Hirsch's case.

The changes in the eyes are confined to the ganglion cells of the retina. In sections of a Muller's fluid eye the ganglion cells are enlarged and globular but have central nuclei; stained with Weigert's hematoxylin or with hematein they appear filled with black metaplasm granules. In sections of a formal eye cut in paraffin and stained by Nissl's method the ganglion cells appear to consist only of the cell reticulum (Nissl granules being absent) and a darkly stained granular nucleus. These staining reactions are identical with those given by the cortical cells of two brains of amaurotic idiocy, one hardened in Muller's fluid, one in formol, with which the eye preparations were compared.

In the normal eye the ganglion-cell layer about the fovea is but three to four cells deep, and farther away it thins down rapidly. The gray patch seen about the fovea in this disease is one and one-half to two disc-diameters in width, and fades out gradually at its periphery into the normal red of the fundus. It occupies that portion of the retina in which the ganglion-cell layer is four or more cells deep, the swollen ganglion cells rendering the retina opaque and obscuring the red color of the choroid except in the fovea where ganglion cells are wanting.

There is no actual edema as has been supposed, and the other layers of the retina are normal. In the optic nerve there is a breaking down of the myelin in many fibres of each bundle and an increase in neuroglia tissue — a secondary degeneration of the neuraxons of the affected ganglion cells of the retina and of the basal ganglia.

DR. B. SACHS said he was firmly convinced that amaurotic family idiocy was a morbid entity which he hoped would be placed upon a firmer basis by the extensive pathological studies made by Dr. Hirsch, Holden and others.

DR. CARL KOLLER, of New York, said he had seen five cases of this affection. In his opinion the characteristic ophthalmoscopic changes in the macula *are not congenital*, and are not found up to between the fifth and seventh months. In two of Kingdon's cases that were examined in the first month they were missing, and in two of his own cases examined in the first two months of life they were also absent. One of the latter is the identical case just reported by Dr. Peterson. Dr. Koller had examined the child five times between the eighth and sixteenth weeks of its life, the ophthalmoscopic result being negative, although other unmistakable signs made sure of its being a case belonging to this class. In the other case, the characteristic changes developed later. The atrophy of the optic nerve makes its appearance a considerable time after the changes in the macula and develops gradually. The behavior of the children with regard to their vision is not normal at a time when no ophthalmoscopic changes are visible, so that the conclusion is permissible that vision is impaired by cerebral degeneration.

DR. MILLS said that these cases, along with some of the forms of diplegia and of muscular atrophy, belong to a great embryonal class. The potentiality of development in these cases is limited, and it may be weeks or months or years before the symptoms make their appearance.

DR. DERCUM had one family under his observation, where, out of four children, three suffered from spasmodic diplegia and idiocy.

THE FORMATION AND EXCRETION OF THE METAPLASM GRANULES OF THE NEURON.

DR. IRA VAN GIESON, of New York, made some remarks on this subject, illustrated by drawings on the blackboard and numerous microscopic specimens. He first described the constituents of the ganglion cells, referring to the sap, by which the food coming to the nerve-cell is elaborated, and the reticulum, which transmits the impulses and also subserves the phenomena of retraction and extension of the neuron. When the food-supply of the ganglion cell is diminished — as it is in alcoholism, in over-fatigue, etc. — we get an indication of it in an excretion of particles which escape from the cell, pass out of the lymph-space and cluster about the blood-vessels. These metaplastic elements are the results of over-fatigue — of a diminished food-supply to the nerve-cells. These nerve changes were not altogether of toxic orgin. We must take into consideration the quantitative and qualitative food-supply of the cells. In amaurotic family idiocy, there was an indication of a diminished food-supply of the cells.

(To be continued.)

Recent Literature.

A Clinical Manual of Skin Diseases, with Special Reference to Diagnosis and Treatment, for the Use of Students and General Practitioners. By W. A. HARDAWAY, M.D. Second edition, revised and enlarged, with forty-two engravings and two plates. Philadelphia and New York: Lea Brothers & Co. 1898.

The second edition of this excellent manual has appeared, much enlarged and thoroughly revised. The arrangement of the book has been changed and an orderly system of classification, based somewhat upon that of Hebra, has been substituted for the alphabetical one. It is a matter for congratulation that the unscientific appendix of formulæ that mars so many text-books has been omitted in this edition. Too much praise cannot be given to the author for the great care that has been taken in the revision of this book, which must have demanded a far greater amount of time than is usually devoted to such work. The work is thoroughly up to date and complete, and the paragraphs on affections that have only recently attracted attention are models of judicious *résumé*. The treatment is decisive and condensed, and will prove of much value for reference. Altogether we consider the book the best manual of its size in the English language and can recommend it heartily to the student and general practitioner.

Atlas of Syphilis and the Venereal Diseases, including a Brief Treatise on the Pathology and Treatment. By PROF. DR. FRANZ MRACEK, of Vienna, authorized translation from the German, edited by L. BOLTON BANGS, M.D. With seventy-one colored plates. Philadelphia: W. B. Saunders. 1898.

The design of this book is to reach a wider circle of readers than those who buy the dermatological atlases hitherto published. For that reason the author has omitted all forms of disease of rare occurrence, and has pictured only the common types that are daily seen. The book has certainly accomplished its object, as the seventy-one colored plates are very good representations of the more common forms of syphilis and venereal affections, and would seem to us much more suited to the general practitioner's needs than the large and expensive atlases. It has been published by Saunders as one of his medical hand-atlases, which are authorized translations of the Lehmann Medicinische Handatlanten, and is of convenient size and shape. Many of the illustrations are really excellent and we can heartily recommend the work. The last part of the book is taken up with a short and practical treatise on the subject matter of the illustrations.

The Diseases of the Stomach. By WILLIAM W. VAN VALZAH, A.M., M.D., Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital, and J. DOUGLAS NISBET, A.B., M.D., Adjunct Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic and Hospital. Philadelphia: W. B. Saunders, 925 Walnut St. 1898.

The great merit of this book lies in its thoroughly practical character. The treatment of the various subjects is concise and definite to an extent which is rare

in the existing text-books upon this branch of medicine. Throughout the work the subjects included are considered emphatically from a point of view of their usefulness and their use in diagnosis and treatment. And in thus confining itself to the statement of that knowledge the bearing of which upon practical work can be indicated, the work gains in usefulness for the general practitioner over many of the more extended works upon the subject.

The classification of the diseases of the stomach adopted by the authors seems to us as on the whole an advance over those of the older books. The plan which is followed of classifying each dynamic affection in accordance with the secretory or sensory or motor condition which is its most fundamental symptom is, we think, the correct one, although there is perhaps a tendency at the present time towards too minute subdivision. But in so far as these affections are amenable to separate treatments in accordance with the character of their fundamental symptom, so far is the classification as separate affections justifiable.

In discarding the plan of grouping most or all of the affections of the stomach not associated with anatomical changes in the general class of neuroses, the authors have certainly made an advance. Whether the initial lesion of these affections lies in the nervous system or not, they possess most of them certain definite physical or chemical symptoms or conditions, and can be investigated along these lines with much benefit to the matter of their diagnosis and treatment. The classifying of these disorders as neuroses, as is the custom in most text-books, has had the effect much too often of relegating them to a class beyond the field of investigation.

The chapters upon the methods of examination and diagnosis of the diseased conditions of the stomach are good. The section which deals with the significance of the results of chemical investigation of the gastric functions is very explicit and thorough. There is perhaps an excessive tendency to dogmatize upon the importance of certain results as pathognomonic, in the treatment of this branch of the subject. In the attempt to supply an acknowledged deficiency in the work of chemical analysis of the gastric contents, namely, a simple method of determining the presence of combined hydrochloric acid in cases where no free HCl exists, the authors have cited two methods which are distinctly unreliable (see page 105). Neither test if positive shows the presence of combined HCl, but simply the presence of combined acid.

The statements upon the motion of the stomach are not in accordance with the latest accepted results upon this subject. In view of the importance of this subject this omission is a serious weakness in the book.

The text upon the special diseases is in each case explicit. The subject is handled in a thoroughly practical manner. The suggestions in regard to diagnosis and treatment commend themselves to the critical reader.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By Richard C. Cabot, M.D. With colored plates and engravings. Third Revised Edition. New York: William Wood & Co. 1898.

All that was said in praise of this admirable work in a previous review [1] can only be repeated and emphasized in considering this new edition. Numerous changes have been made in the text, all of them, we think, for the better and much new material has been added. Many minor changes have been made in the methods of blood examination, most of which simplify the process. The author now advises hardening the blood by heating to 140°–150° C. and then slowly cooling, instead of at 110°–115° as before. The formula given for the preparation of the Ehrlich tricolor mixture is also different. Descriptions and directions as to the use of Oliver's tintometer and hemoglobinometer have been added as well as a description of Müller's "blood dust."

Under the morphology of the blood, the descriptions of the small and large mononuclear cells have been considerably modified and much improved. The idea that the various varieties of leucocytes pass into each other has been discarded and the terms "young and old forms" dropped. This change is decidedly for the better and more in accordance with our present knowledge or lack of knowledge.

In the chapters on the pathology of the blood the author draws attention to the oval shape of the corpuscles in severe anemias and speaks of the qualitative changes in the individual cells in leucocytosis.

The chapters on the primary anemias contain considerable new material and have been decidedly improved. The division of leukemia into myelocythemia and lymphemia is founded on a rational basis and is a great advance over the old classification. We hope to see it adopted clinically. Considerable new matter regarding lymphemia has also been introduced.

About 1,700 new blood examinations, mostly of the white corpuscles, have been added. Of special interest, in the light of the recent epidemic, are those in cerebro-spinal meningitis. Bremer's and Williamson's tests for diabetic blood and the iodine reaction during acute suppurative processes are described. A comprehensive article on the clump reaction and the serodiagnosis of typhoid closes the book. The author considers the limits of error of the serum test for typhoid very small if the proper conditions are fulfilled, that is, actively motile, virulent organisms, one-tenth dilution, and one-half hour time limit.

No one who wishes to study the blood or to know what has been learned by the study of the blood can afford to be without this book. It is indispensable both to the student and to the practitioner.

A Compend of Diseases of the Skin. By JAY F. SCHAMBERG, M.D. Philadelphia: P. Blakiston's Son & Co. 1898.

This is one of Blakiston's series of Quiz Compends designed "for the use of practitioners and students, as a rapid reference work and key to the study of dermatology." It is very similar to the many other short abstracts of dermatology that have been published lately, and the work seems to have been carefully done.

[1] Boston Medical and Surgical Journal, 1897, cxxxvi, 577.

PROFESSOR FOSTER HONORED. — Prof. Michael Foster has been chosen president for next year of the British Association for the Advancement of Science. Professor Foster has been for seventeen years secretary of the Royal Society, and for about the same space of time Professor of Physiology at Cambridge University.

THE BOSTON

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ON HEAD-INJURIES AND THEIR TREATMENT.

THE vicissitudes of the trephine constitute one of the most interesting chapters in surgical history. From the days of Bérenger de Carpi and his contemporary, Ambroise Paré, down to our own — a period of over three centuries — the cranium and its contents have offered a most attractive field to the surgeon. The secret of this attractiveness lies in the startling eccentricity of course pursued by pathological processes within the cranium, especially of those of traumatic origin. Even the earliest observers of experience were cognizant of the tendency in cases of the latter sort, of least apparent moment, to terminate fatally, while the most severe often recovered spontaneously under unfavorable circumstances. The discovery of this treachery on the part of diseased nervous tissue has been an incessant source of irritation to the surgeon, keeping him constantly on the *qui vive* in the effort to outwit nature by strategic operations. How one-sided the struggle has thus far been is painfully obvious to one who has the opportunity for examination of its *unpublished* records.

It is interesting, in the light of present pathological knowledge, to look back upon the fierce contentions which went on among the surgeons as to the danger of converting (by operation) a simple into a compound fracture, when we consider that the cranial opening stands in about the same relation to the real problem as does the skin incision in an abdominal operation. It is curious to note, moreover, that there are still surgeons who have not grasped the distinction between depression and compression, and hence have not eradicated from their minds the false idea that the immediate elevation of a depressed fragment of bone is a matter of absolutely vital importance.

Although we cannot but admire the improvement which has taken place in the technique of cranial surgery, yet we cannot help feeling that the very facility of the operation of trephination often leads the surgeon into ill-considered action, and betrays the consulting neurologist into counselling operative interference from which his calmer judgment would dissuade. The difficulty of exact diagnosis, even with our present knowledge, is still great, and the neurologist must often admit in the presence of a given case of cranio-cerebral traumatism that he is confronted by a combination of circumstances so unique that he occupies very much the same position as does the weather prognosticator in the times when "all signs fail." There is no case like a head case to dispel fondly cherished delusions as to the significance of symptoms; no case like a head case to engender regrets. There is no opportunity to study leisurely the steady invasion of a pathological process, such as a cerebral neoplasm; there is need, and urgent need, for the keenest diagnostic skill, for the most comprehensive judgment, and often for self-restraint. Historical data are most commonly totally insufficient and untrustworthy, and the neurologist is immediately plunged *in medias res*. Under the stress of circumstances, it is easy for the cerebral aspects of the case to dominate the clinical picture and for a fractured liver, spleen or kidney to fall short of consciousness. On the strength of a dilated pupil, a mono or hemiplegia, the skull is opened and the lesion sought, and if not found at the site of operation, the latter is enlarged, or a counter-opening made on the opposite side of the head — in an unfortunate majority of cases all to no purpose.

The present occasion seems a fitting one to raise the question as to the propriety of such a course of action. We should ask ourselves exactly what we expect to accomplish in a field of operation as limited, and under physical conditions as difficult as these presented in trauma to the soft and yielding cerebral substance. If it were always a question of the relief of compression from uncomplicated extra-dural hemorrhage, the propriety of such operation would be unquestioned, but unfortunately the facts of statistical evidence are overwhelmingly conclusive as to the very regrettable rarity of such a desirable condition of affairs. Autopsy after autopsy continues to reveal the undeniable truth that the great majority of traumatic head cases present multiple lesions, a most natural revelation in view of the necessarily diffuse transmission of a traumatizing force. In this connection we need but refer to the frequent association of small hemorrhages in or about the motor areas with abundant hemorrhage, and areas of laceration or contusion in the so-called silent regions of the brain. How easy it is for the former to evoke the predominant clinical phenomena in a given case needs only to be mentioned to be appreciated. Moreover, if the latter had no significance, the problem would be reduced to its lowest terms, but, alas, physiological experiment has demonstrated only too conclusively how little hemorrhage is necessary in the cerebellar chamber, (for instance) to produce a quickly fatal result, owing to the pressure discontinuity between this and the other chambers of the brain.

In the face of all this it seems to us that the limita-

tions of the utility of trephination in cranio-cerebral traumatisms are clearly defined. First of all, experience teaches that the fundamental rule governing such cases is not to operate at all until some reaction from the shock of the trauma has taken place. The second rule should be to operate only upon depressed fractures and upon cases which present a reasonable probability of middle meningeal or intra-cranial hemorrhage, so situated that by the evacuation of the clot dangerous pressure can be removed from the brain. It is in these cases that cerebral surgery furnishes brilliant and life-saving results.

The removal of shattered fragments in compound fractures, and the free drainage of lacerated areas, and the cleansing and drainage of septic conditions of traumatic origin, also afford very evident indications for opening the cranium.

Although to the enthusiastic advocate of trephining the above limitations may seem too narrow, he may be legitimately asked to report any cases which he can safely say were saved by his operation where the conditions were other than those enumerated.

We have already referred to the danger of laying too much stress upon a mono or hemiplegia in head cases as localizing guides, and we would here urge that too much significance should not be attached to the condition of the pupils, for their variability under identical circumstances is extreme.

The "interval of consciousness" and, where present, the slow pulse of cerebral pressure afford the best signs for our guidance in deciding upon an operation after cerebral traumatism.

In doubtful cases suggesting hemorrhage, where owing to alcoholism or the immediate onset of the bleeding, the immediate unconsciousness following the traumatism passes over into the deeper coma, with slow pulse and paralysis from cerebral pressure, and the symptoms grow progressively worse, trephining is again urgently indicated.

Viewing the whole subject broadly, we should conclude, in the light of statistical evidence, that the results thus far obtained from trephination, even with the most improved technique, are, except in cases which embody the conditions set forth in our limitations, distinctly discouraging; and we venture to predict that if the surgeon would only more fully acquaint himself with the exact nature of the pathology of cerebral traumatisms and with the laws of brain physiology, the indications afforded by a dilated pupil or a hemiplegia would not seem so urgent, and the facility of trephination would not so often lead to its abuse.

MEDICAL NOTES.

Yellow Fever in the South. — During the past week yellow fever has continued to spread throughout Louisiana and Mississippi, the unreasoning panic which has taken possession of the officials from the governor down in the latter State, and led them, as well as everybody else, to seek safety in flight, having resulted in state of affairs which has prevented any co operation of the State authorities with the Marine-Hospital Service in intelligent efforts to control the outbreak. The negroes in the stricken towns are herded together in quarantine, without sufficient food, and suffer from starvation as well as fever. The mild character of the epidemic is shown by the great disproportion between the number of cases and deaths reported. In Franklin, La., for instance, up to October 6th, there had been 375 cases and 7 deaths; and in New Orleans, to October 8th, 62 cases and no deaths; in Wilson, La., up to October 8th, there had been 247 cases and 4 deaths. The highest mortality has been at Oxford, Miss., where, up to October 8th, there had been 470 cases and 34 deaths; and Taylor, where, to October 6th, there had been 100 cases and 11 deaths. Frosts were reported in Louisiana and Mississippi October 17th.

The Patenting of Antitoxin. — In a recent number of the *Deutsche Medicinische Wochenschrift*, Professor Behring has replied to those who criticise his action in patenting diphtheria antitoxin in the United States, first, that he is no longer a practitioner of medicine; second, that he had to adopt business methods in order to secure money with which to continue his investigations; and third, that his manufacturers will supply antitoxin in America at the same prices at which the American firms have supplied it hitherto. The question as to whether physicians should patent their discoveries having been emphatically decided in the negative, Professor Behring defends himself on the ground that he is no longer a physician, but a scientific investigator. Whether scientific investigators should patent discoveries which are of great value to mankind in the saving of life is a question of great difficulty, and one as yet unsettled. At all events, it is evident that other investigators have made such important contributions to the discovery of the antitoxin treatment of diphtheria and the method of producing antitoxin, that Behring should claim neither the sole credit nor the whole profit therefor. From any point of view his defence is a lame one.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, October 19, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 33, scarlet fever 20, measles 13, typhoid fever 27.

Death of Dr. George Danforth Colony. — George Danforth Colony, M.D., of Fitchburg, Mass., died in that city on October 2d, aged seventy-seven years. He was born in Keene, N. H., was graduated from Dartmouth College in 1843, and took his medical degree at the University of Pennsylvania in 1846. He began practice in Athol, Mass., where he remained until 1861, when he removed to Fitchburg, where he attained a leading position among the practitioners of that city and the surrounding district. He was a man

of large experience and a thorough student of medical literature, and his advice as a consultant was often sought by his fellow practitioners. He was active in municipal affairs and had served on the school committee and as a member of the Common Council of Fitchburg. He was for many years a trustee of the public library and was consulting physician and trustee of the Burbank Hospital.

Death at the Age of One Hundred and One. — James Goldsbury, aged one hundred and one years, seven months and eight days, died at his home in Warwick, Mass., recently. He was said to be the oldest man in Franklin County.

Bequests to Hospitals. — By the will of Caroline Tucker Downs, late of Canton, recently presented for probate in Norfolk County, $20,000 each were bequeathed to the New England Hospital for Women and Children and to the Children's Hospital of Boston. Numerous other bequests were made to public institutions, and a *pro rata* division of the remainder of the estate, after paying these bequests among the various beneficiaries, was provided for.

The Vermont State Medical Society. — The Vermont State Medical Society held its eighty-fifth annual meeting in Brattleboro, on October 13th and 14th. A large number of papers of more than ordinary interest and scientific value were read during the session, which was one of the most successful in the history of the Society. Dr. Lyman Rogers, of Bennington, was President of the Society, and Dr. D. C. Hawley, of Burlington, Secretary.

The Tetanus Antitoxin Furnished by the Massachusetts State Board of Health. — We are informed by Dr. Theobald Smith that, estimated, the strength of the last lot of antitoxic serum prepared by the State Board of Health is about one Behring unit per cubic centimetre, granting that the use of guinea-pigs does not essentially modify the "white mouse standard." It will, therefore, be necessary, in order to administer the dose advised by Behring (500 units), to give 500 cubic centimetres of the serum.

The Massachusetts Board of Registration in Pharmacy. — The Massachusetts Board of Registration in Pharmacy has issued its thirtieth annual report, which shows that 39 examinations have been given during the year. Upon the enforcement of the pharmacy law 24 hearings have been held; upon the granting of liquor licenses there have been 117 hearings. The board has taken care to avoid injustice to any applicant for registration in pharmacy or for a liquor certificate. The welfare of the public has been studied in the refusal to grant such certificates whenever, in the judgment of the board, the public good would thereby be promoted. Only 94 of the 518 applicants examined were registered. Only two violations of the poison law have been found during the year.

NEW YORK.

The Mortality during September. — During the five weeks ending October 1st the mortality reported in the city represented an annual death-rate of 22.35. Owing to the extreme and very fatal heat of the latter part of August and first part of September, the death-rate in September was but little lower than in August, the rate for the five weeks ending August 27th being 22.46. During the five weeks ending October 1st there were 369 deaths from sunstroke, against 65 deaths in the preceding five weeks. In the single week ending September 10th there were no less than 323 deaths from sunstroke, by far the largest mortality from this cause during the year. While the heat in September was so fatal to adults (most of these deaths being among persons of this class), it was much less disastrous in its effect upon young children than the hot weather earlier in the season, as is shown by the following figures reported by the registrar of records of vital statistics. In the five weeks ending October 1st the total number of deaths from this class of disease was 1,076, an average of 215.2 per week, while the number of deaths in children under two years of age was 963, an average of 192.6 per week. In the five weeks ending August 27th the total deaths from diarrheal diseases were 1,628, a weekly average of 325.6, and the deaths among children under two years of age, 1,481, a weekly average of 296.2.

The Returning Soldiers and the Typhoid Mortality. — During the five weeks ending October 1st the deaths from typhoid fever averaged 35.2 per week, against 19 per week in the five weeks ending August 27th, and 7.6 in the five weeks ending June 25th. This increase, as has been previously pointed out, is almost entirely due to the prevalence of typhoid among returning soldiers. Of late, however, there has been a considerable decrease in the deaths from this cause. In the weeks ending September 10th and 17th there were 49 and 44 deaths from typhoid, respectively, while in the weeks ending September 24th and October 1st there were 29 and 30 deaths, respectively. With the advent of autumnal weather we find some increase in the mortality from thoracic diseases. In the five weeks ending October 1st there was a weekly average of 147.6 deaths from pulmonary tuberculosis, against 142 deaths per week in the preceding five weeks. From pneumonia the weekly average of deaths was 95.2, against 80.2 in the preceding five weeks, and from bronchitis, 25.8, against 14.4 in the preceding five weeks.

Mortality of the Different Boroughs. — In comparing the mortality of the different boroughs of the city, leaving out of account the Borough of the Bronx, in which the many large institutions raise the death-rate, we still find the lowest percentage of deaths in the Boroughs of Manhattan and Brooklyn, and the highest in Queens, on Long Island, and Richmond, on Staten Island. During the five weeks ending October 1st the mortality represented an annual death-rate of

21.94 in Manhattan, 21.56 in Brooklyn, 25.18 in Queens, and 26.04 in Richmond. The difference is not so marked, however, as in the preceding five weeks, when the figures were as follows: Manhattan, 21.40; Brooklyn, 21.90; Queens, 29.59; Richmond, 31.85. In the Borough of Richmond we notice the most remarkable variations in the mortality. Thus, in the hot week ending September 10th, notwithstanding its extensive area of salt-water exposure, the death-rate rose to 40.99, which is by far the highest in any of the five boroughs since the beginning of the year; while in the next week but one after that (ending September 24th), the death-rate was only 15.27, the lowest met with in any of the boroughs since before the warm weather set in.

DEATHS OF TWO CENTENARIANS. — Mrs. Phœbe Crilley died in New York on October 3d, at the age of one hundred and two years. She was born in New Jersey and her whole life was passed in New Jersey and New York. She kept house for her son until past ninety-six, when she met with an accident. William Carroll died in Brooklyn on October 5th, at the age of one hundred and three years. He was born in Kings County, Ireland, in 1795, and did not come to America until eighteen years ago. Until shortly before his death he had never known a day's illness and he worked in a rosin factory up to ten months ago, when his family insisted on his giving up work.

AN UNKNOWN GIANTESS. — Bridget McDonald, a giantess unknown to fame until after her death, was found dead in her basement room in West 26th Street on October 9th. She was nearly seven feet in height, and probably the tallest woman in New York. She was seventy years old, and for the last ten years had lived alone in one room.

DEATH OF A VETERINARY SURGEON FROM AN UNUSUAL CAUSE. — Dr. William Machan, a well-known veterinary surgeon of New York, died on October 10th from the effects of a singular accident, met with a few days before. While he was in the act of administering a hypodermic injection of chloride of barium to a large draught-horse the animal suddenly dropped dead, his body crushing the veterinary against the stone wall of the stable.

Miscellany.

THE OPENING OF THE MEDICAL SCHOOLS.

THE opening of the Medical Schools in October suggests to the editor of the *Practitioner* the following pertinent reflections. As they present a view of the situation which is too frequently neglected, in spite of its evident truth, we find them well worth quoting:

When at the opening of the winter session in a thriving school one sees the benches crowded with high-spirited boys with the world before them, one feels tempted to say with Abernethy, "God help you, gentlemen: what is to become of you all?" In the introductory addresses the young conscripts of medicine are told that they have only to do their duty with their might, and all will be well with them; at worst they can always earn a living wage; and then there is the chance of a marshal's bâton being in the knapsack! It would be more honest, as assuredly it would be kinder to the lads, to tell them exactly what they have to expect. For even moderate success in medicine there is needed a combination of qualities which are not very often found united in one individual. A man must know not merely the science, but the art of medicine; he must be as expert in the diagnosis of the character as in that of disease, and he must be as observant of moods, influences and surroundings as he is of symptoms and indications; he must be able to adjust his behavior as accurately as his remedies; in a word, he must know how to deal not only with the "case" but with the patient. These things are not to be learnt from books or from lectures; like reading and writing, according to Dogberry, they "come by nature," but they do not by any means come to all.

The following words which I quote from a book published in 1845 by Lucas-Championnière (the father of the eminent Paris surgeon, M. Just Lucas-Championnière) expresses the truth of the matter in regard to the prospects offered to ingenuous youth by the medical profession:

"The young men who are about to impose upon themselves [and the writer might have added, on their parents] enormous sacrifices in order to devote themselves to that arduous profession ought to know that only some of them will find, in a fortunate competence, the just reward of a laborious life; the others will be condemned, during their hard existence, to a condition not far removed from sordid poverty; and some will fall, sooner or later, into the direst distress."

It is not a cheerful picture but it is a true one; and it is made the sadder by the fact that it is not only the idle or the vicious who "go under." Many men, not wanting in ability or in character, fail in medicine through want of means to make a good start, through some defect in temper or manner, through lack of some indefinable personal quality, or through sheer ill-luck. And yet men crowd into the profession more and more every year, and hungry generations tread down the weak, and the struggle for life grows ever fiercer for the strong. I think the best text for an introductory address would be "Few are Chosen," and the orator should strive to impress upon the many who think themselves called that they would be wise to turn their hands to some work less likely to lead to disappointment while their minds are plastic and their hearts unbroken by failure.

PHYSICAL DEGENERATION IN INDIA.

IN a recent number of the *Indian Lancet*, Dr. Dhingoa, after a careful analysis of the conditions now prevailing in India concludes that there is a distinct physical degeneration going on among the inhabitants.

The causes he considers to be, in general, as follows: first, those which have always been recognized as deleterious: climate, disregard of hygienic methods of living, early marriages, and the secluded, shut-up life of the women. These elements have, however, been active for many years, yet the degeneration has been of a much more recent date; hence Dr. Dhingoa believes that the essence of the matter lies in the changed life of modern times, which entails an excess of mental application and a disregard for physical exercise. This, and the introduction of alcohol, he thinks are potent factors in the present situation. The system of education is bad, inasmuch as its net result is a cramping both of mind and body. "There is hardly any energy left, when a young man enters into his worldly career. With a disorganized mind he takes

his feeble energy to the utmost, till, at last, he breaks down in one way or another." But perhaps more important than anything else is the social condition of women, the whole tendency of which is demoralizing, not only to the women themselves, but also to their children. "The cause of the physical degeneration is a want of harmony between the individual and his environment. For while the new order of things — the existing struggle for existence — demands from him more and more mental labor, and for the matter of that physical work also — the environment of climate, of home and of family, remains unchanged; and thus the individual is not prepared to face the new order of things safely."

Methods of ameliorating the present state of things, the writer summarizes as follows:

(1) Children should not be sent to school under seven years of age. This is really good for them in the long run; partly because there would be a better preparation for a healthy physique, which is of so great a service in the after-life, and partly because the mental evolution will proceed in a healthy and more satisfactory manner.

(2) In childhood and youth, the mental work should not be much, and great attention should be paid to food and physical exercise in the open air.

(3) Some educational reforms should be introduced, with the object of reducing the cramming system to a minimum, and encouraging the organization of knowledge and the love for study.

(4) Early and improvident marriages should be prevented. And, need I say anything in favor of female education? Its necessity is known to everybody.

(5) And, lastly, smoking and drinking — which are decidedly injurious to the growing children — should be prevented, so far as it lies in the power of teachers and fathers.

THE REPORT OF THE SURGEON-GENERAL OF THE NAVY.

THE Report of Surgeon-General Van Reypen, which has recently appeared, begins with a tribute to his predecessor, Surgeon-General Tryon, whose work in organizing and equipping naval hospitals enabled the naval medical service to care efficiently for the sick or wounded during the war.

When the *Maine* was blown up, immediate preparations were made for active service, the equipment of the hospitals was made complete in every respect, and a large amount of medical and surgical supplies provided for. As soon as war became inevitable, all the vessels in active service were provided with a full outfit of medical supplies, and in anticipation of the expected increase in the navy, outfits for the new ships were prepared and boxed, ready for use.

No vessel during the war had to wait for her medical stores.

In anticipation of the necessity for increasing the medical force, medical examining boards were sent out to the principal cities to examine applicants for appointment, with the result that at the outbreak of the war the medical department had a long list of well-qualified men from which to make selections of volunteer surgeons. Thirty-seven out of two thousand applicants were chosen. Of the work of these men the surgeon-general says:

"They have rendered efficient service, and have been a credit to the navy. Some have had unusual and trying experiences, but they have accommodated themselves to their environments, and have justified their appointment.

"Only one medical officer was killed during the war, Assistant-Surgeon John Blair Gibbs, who fell at Guantanamo, serving with the marine battalion.

"The medical department has long had under consideration the fitting out of a hospital ship, and the present war has demonstrated the usefulness of such a vessel. The steamer *Creole* was purchased, and was converted into an ambulance ship within sixteen days, fitted with every necessary surgical appliance, disinfecting apparatus, cold storage, laundry and elevator. She was the first completely equipped hospital ship ever fitted out, and performed invaluable service in the care of the sick and wounded, and the transportation of medical supplies."

The surgeon-general expresses the thanks of the department to the patriotic individuals and societies who have furnished medical supplies and comforts in addition to those furnished by the government, and particularly mentions the work done, in their report, by patriotic women. In conclusion, he says:

"I cannot close this portion of the bureau's report without bearing testimony to the efficiency, skill and devotion to duty of the personnel of the medical department. Not a word but of praise has the bureau heard of any of them — regulars or volunteers. When war was imminent, they vied with one another in their efforts to get on fighting ships. Some had greater opportunities than others, but all have done well the work assigned to them. Surgeon Edgar saw his Assistant-Surgeon, Gibbs, shot at his side in the Spanish attack, and he continued his work alone, doing it thoroughly and well, as it was known he would.

"The medical officers of the vessels in the fight at Manila and in the battle of the 3d of July shared the dangers of their comrades, and should participate in the praise accorded them.

"The medical officers of the *Solace* have the honor of inaugurating the first complete system of antiseptic surgery at sea. They have adapted means to ends, have improvised apparatus, have been fertile in expedients, and have the satisfaction of having demonstrated that, with skill and intelligence, the percentage of mortality among the patients on a well-equipped ambulance ship will be no greater than in the hospitals on shore.

"Medical-Inspector Persons found himself suddenly confronted with 226 Spanish sick or wounded prisoners in a hastily established hospital. He was equal to the emergency, and his assistants were complimented by Admiral Cervera when he visited the camp.

"The medical officers of the other hospitals have had suddenly large accessions of patients. They were always ready, and always cared for them well."

BOSTON DISPENSARY.

The statistics of this institution for the year ending September 30, 1898, are as follows:

The number of new patients treated at the Central Office is 26,291, classified as follows:

Medical Department. — Men, 3,221; women, 4,612; children, 3,835; total, 11,678.

Surgical Department. — Men, 554; women, 539; children, 539; total, 1,632.

Department for Diseases of the Nervous System. — Men, 528; women, 907; children, 130; total, 1,565.

Department for Diseases of the Throat and Nose. — Men, 763; women, 758; children, 588; total, 2,109.

Department for Diseases of Women. — Total, women, 1,118.

Department for Diseases of the Eye. — Men, 369; women, 579; children, 312; total, 1,260.

Department for Diseases of the Ear. — Men, 222; women, 250; children, 288; total, 700.

Department for Diseases of the Genito-Urinary System. — Men, 2,237; women, 24; children, 4; total, 2,265.

Department for Diseases of the Rectum and Anus. — Men, 124; women, 53; children, 3; total, 180.

Orthopedic Department. — Men, 92; women, 135; children, 74; total, 301.

Department of Mental Diseases. — Men, 35; women, 39; children, 21; total, 95.

Dental Department. — Men, 157; women, 151; children, 257; total, 565.

The number of visits made by patients, old and new, at the Central Office is 66,923, classified as follows:

Medical, 28,714; surgical, 38,209; total, 66,923.

The number of patients treated in the Districts is 13,726, including 269 cases of midwifery, classified as follows:

Men, 2,583; women, 5,173; children, 5,970; total, 13,726.

The results of treatment in the Districts are as follows:

Discharged, cured or relieved.	13,308
Removed to hospitals	1,158
Died	236
Remaining under treatment	114
	13,816
Under treatment at last annual report	90
	13,726
The number of visits made by the District physicians	20,123
The number of patients treated at the Central Office and in the Districts	40,017
The number of cases of midwifery attended during the year	269
The number of cases of midwifery attended since July, 1856	9,766
Whole number of patients since October, 1796	1,418,862
Whole number of patients since July, 1856	1,299,699
Average daily attendance at the Central Office	230
Largest number present any one day, September 10th	399
Smallest number present any one day, February 1st	44
Number of recipes put up at the Central Office during the year	73,809
Number of house recipes	63,309
Number of District recipes	10,500
Largest number of recipes put up in one day, March 14th	430
Smallest number of recipes put up in one day, February 1st	44

The list of medical officers for the ensuing year is as follows:

Surgeons. — Drs. E. O. Otis, F. M. Briggs, E. A. Pease, W. F. Gay.

Assistant-Surgeons. — Drs. A. A. Wheeler, J. S. Stone, W. P. Coues, G. A. Harlow.

Physicians. — Drs. R. Disbrow, T. M. Rotch, H. Williams, E. M. Buckingham, W. F. Temple, H. Jackson, R. W. Greenleaf, S. Breck, G. A. Sargent, E. L. Twombly, W. E. Fay, W. H. Prescott, A. S. Knight, F. R. Tower, J. W. Bartol, E. C. Stowell, J. N. Coolidge, F. A. Higgins.

Department for Diseases of the Skin. — Drs. A. Post, J. S. Howe.

Department for Diseases of the Nervous System. — Drs. F. Coggeshall, W. R. Woodbury. Assistant, Dr. C. A. Ewald.

Department for Diseases of the Throat and Nose. — Drs. J. W. Farlow, F. C. Cobb, W. S. Boardman, W. E. Cheney. Assistant, Dr. B. Tenney.

Department for Diseases of Women. — Drs. J. B. Swift, G. Haven, M. Storer, C. H. Hare.

Department for Diseases of the Eye. — Drs. F. E. Draper, W. E. Baxter.

Department for Diseases of the Ear. — Drs. W. Preble, E. M. Holmes. Assistant, Dr. C. S. Wright.

Department for Diseases of the Genito-Urinary System. — Drs. G. W. Allen, C. M. Whitney, H. A. Lothrop, C. M. Smith. Assistant, Dr. W. Cogswell.

Department for Diseases of the Rectum and Anus. — Dr. W. J. Otis. Assistants, Drs. J. C. Stedman, J. S. Phelps.

Obstetric Department. — Dr. C. M. Green. Assistants, Drs. E. Reynolds, C. W. Townsend.

Orthopedic Department. — Drs. C. G. Page, C. F. Painter.

Department of Mental Diseases. — Dr. W. Channing. Assistant, Dr. A. C. Jelly.

Pathologist. — Dr. E. M. Greene.

Dentist. — A. H. Fisher, D.M.D.

District Physicians. — Drs. W. H. Grant, F. Drew, F. W. White, A. L. Chute, C. N. Barney, F. J. Cotton, E. P. Joslin, F. W. Pearl, F. S. Newell, D. F. Jones, R. F. Chase, R. E. Edes.

Physician to the Central Office, Roxbury. — Dr. H. F. Hewes.

Apothecary. — G. Lachambre. Assistant, E. C. Dodge.

DR. W. H. H. HASTINGS, *Superintendent.*

Correspondence.

UNRELIABLE INFORMATION.

THE COLONIAL, MOUNT CLEMENS, MICH.
October 3, 1898.

MR. EDITOR: — There has been a question coming up from time to time, as to the reliability of the information published by R. L. Polk & Co., in their Medical and Surgical Register of the United States. This question has been discussed *pro* and *con*, some claiming that it was reliable and others that it was not. It has come to the notice of physicians generally, that the names of men were inserted as practising physicians, whose evidences of having graduated were rather shady; but not until the present year have I known of any instance where they have sought to compel physicians to buy their publication, by giving them a bad standing before the public if they did not. That seems to have been done in my case in the present edition, without any other motive, so far as I am aware, than that as Treasurer of the Mount Clemens Sanitarium Co., they solicited an advertisement for two publications which they are getting out (namely, the Medical and Surgical Record and the State Gazetteer which I did not think, from a business standpoint, would be a paying investment). In the two former editions, 1893 and 1896, the name and standing of the college at which I graduated were correctly given; but, in the present edition, the statement concerning me is as follows: "Alfred N. Shotwell, R." followed by a mark which indicates "Claims to have graduated, but the records do not show that a diploma was ever granted to any one bearing that name." The fact of my graduation has never been questioned before, and I refer you, as to the untruth of their statement, to any member of the faculty of the Detroit College of Medicine, where I graduated February 29, 1884, or to any member of the following societies: The Michigan Medical, The Northwestern, The American Medical and The Pan-American. It would seem that it is about time for physicians to take a stand in this matter, as farther down in the registration of this town (if you will follow it), appear the names of two masseurs, among the names of physicians. I know nothing whatever about the standing of these men, and it is foreign to the question, further than that they do not claim to be graduates of medicine, nor do they practise medicine in any way, shape or form. Is this a register and directory of physicians or is it a directory published simply for what the proprietors can make out of it?

I will be glad to take this up with you, and furnish you any other data that I can, and will furnish certificates from the officers and faculty of the college at which I graduated, which will substantiate the statement that this publication is unworthy of the confidence of the medical profession.

If you will give this matter publicity through the JOURNAL in any way that you think proper I shall be very glad to have you do so. Very truly yours,

A. N. SHOTWELL, M.D.

METEOROLOGICAL RECORD

For the week ending October 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....2	30.41	61	64	58	92	92	94	N.	E.	10	2	F.	O.	
M....3	30.26	70	83	58	84	83	84	S.W.	S.W.	12	15	C.	C.	
T....4	30.12	76	85	68	82	83	82	S.W.	S.W.	12	8	C.	O.	
W...5	29.96	65	74	56	94	94	94	S.E.	N.W.	7	8	R.	R.	1.31
T....6	30.26	56	62	51	56	49	52	N.W.	N.	12	6	C.	C.	
F....7	30.41	56	66	45	79	68	74	N.W.	S.	5	10	C.	O.	
S....8	30.09	58	64	53	92	88	90	S.E.	W.	9	8	R.	C.	.22
														1.53

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 8, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1232	438	10.88	11.76	7.20	2.88	1.76
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,240,226	—	—	—	—	—	—	—
St. Louis	623,000	—	—	—	—	—	—	—
Boston	525,463	227	94	13.20	7.92	6.16	4.40	.44
Baltimore	508,389	170	62	18.29	7.67	5.31	5.31	7.67
Cincinnati	405,000	99	—	12.12	7.07	11.11	—	1.01
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	285,000	87	33	23.00	10.35	9.20	8.05	12.65
Washington	277,000	111	40	23.40	11.70	4.50	5.40	9.90
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	69	25	31.54	20.00	20.00	—	3.32
Nashville	87,784	37	11	8.10	16.20	2.70	2.70	2.70
Charleston	65,165	45	21	22.22	6.66	13.33	8.88	—
Worcester	109,250	27	13	37.00	11.10	22.22	—	3.70
Fall River	95,919	32	14	21.91	9.39	18.78	3.13	—
Cambridge	89,724	35	18	28.50	2.85	19.95	—	5.70
Lowell	88,641	26	12	15.40	3.85	11.55	3.85	—
Lynn	86,703	12	4	—	8.33	—	—	—
New Bedford	82,340	25	11	4.00	16.00	—	4.00	—
Somerville	61,101	11	2	27.27	9.09	9.09	9.09	—
Lawrence	57,263	21	7	9.52	4.76	9.52	—	—
Springfield	56,501	15	5	33.33	11.11	—	—	11.11
Holyoke	43,424	18	9	27.27	16.66	22.22	—	—
Brockton	37,276	14	4	—	7.14	—	—	—
Salem	36,883	7	1	14.28	—	14.28	—	—
Malden	34,613	8	4	50.00	12.50	12.50	12.50	12.50
Chelsea	33,468	10	9	—	—	—	—	—
Haverhill	32,022	15	5	33.33	13.33	13.33	—	—
Gloucester	30,589	—	—	—	—	—	—	—
Newton	29,716	7	4	—	—	—	—	—
Fitchburg	29,438	5	0	—	60.00	—	—	—
Taunton	28,167	12	3	—	8.33	—	—	—
Everett	25,338	12	6	—	—	—	—	—
Quincy	23,549	5	4	20.00	—	20.00	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	8	3	—	—	—	—	—
North Adams	20,971	8	1	12.50	12.50	—	12.50	—
Chicopee	17,842	—	—	—	—	—	—	—
Medford	16,511	5	3	60.00	—	40.00	20.00	—
Newburyport	14,915	—	—	—	—	—	—	—
Melrose	14,032	—	—	—	—	—	—	—

Deaths reported 2,422: under five years of age 916; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 382, consumption 252, acute lung diseases 208, diarrheal diseases 194, typhoid fever 83, diphtheria and croup 57, whooping-cough 26, scarlet fever 11, cerebro-spinal meningitis 8, measles 3, erysipelas 2.

From whooping-cough New York 10, Pittsburg 4, Boston, Providence and Haverhill 2 each, Worcester, Cambridge, Holyoke, Malden and Newburyport 1 each. From scarlet fever New York 8, Boston, Pittsburg and Washington 1 each. From cerebro-spinal meningitis Washington and Worcester 2 each, New York, Boston, Somerville and Haverhill 1 each. From measles New York 3. From erysipelas New York and Boston 1 each.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, October 24th, at 8 o'clock.

Dr. Thomas Dwight, by invitation, will speak on: "Contortionists and Anomalies of the Spine." His remarks will be illustrated by lantern slides.

Dr. Malcolm Storer: "Retro-displacements of the Pregnant Uterus."

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, October 26, 1898, at 8 P. M.

Papers: Dr. R. A. Kingman: "Report of a Second Case of Double Ovariotomy during Pregnancy; Hydatiform Mole."

Dr. Wm. M. Conant: "Extrauterine Pregnancy, with Report of Cases."

F. W. JOHNSON, M.D., *Chairman.*
C. H. HARE, M.D., *Secretary.*

SIXTH INTERNATIONAL OTOLOGICAL CONGRESS.— The International Otological Congress will take place in London under the Presidency of Dr. Urban Pritchard, Professor of Otology at Kings' College, London, on August 8, 9, 10, 11, 12, 1899, the Treasurer being Mr. A. E. Cumberbatch.

The British Organization have decided that in addition to papers on any subject relating to oto'ogy, the following shall form a subject for general discussion, namely, "Indications for Opening the Mastoid in Otitis Media Suppurative Chronica."

E. CRESSWELL BABER, *Hon. Sec. to the Committee*,
46 Brunswick Square, Brighton.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.— The eleventh annual meeting of the Association which was announced to be held in Memphis, Tenn., Tuesday, Wednesday and Thursday, November 8th, 9th and 10th, has been postponed till Tuesday, Wednesday and Thursday, December 6, 7 and 8, 1898, on account of the quarantine regulations in some parts of the South. The Gayoso House has been selected as headquarters for the Association.

Members of the medical profession are cordially invited to attend. Dr. R. B. Maury, of Memphis, is chairman of the committee of arrangements.

RICHARD DOUGLAS, M.D., *President.*
W. E. B. DAVIS, M.D., *Secretary.*

RECENT DEATH.

NATHAN SMITH LINCOLN, M.D., of Washington, D. C., whose death was reported last week, was a prominent and successful practitioner of that city. He was named after Nathan Smith, the distinguished surgeon of Hanover, N. H., and was graduated from Dartmouth College. He received his medical degree from the University of Maryland. He was a member of the American Medical Association, one of the vice-presidents of the Ninth International Congress, which met in Philadelphia in 1887, and president of the alumni of the University of Maryland. In 1866 he was elected one of the surgeons to the Providence Hospital, which place he resigned in 1875.

BOOKS AND PAMPHLETS RECEIVED.

A Country Doctor. By Thomas Hall Shastid. Battle Creek, Mich.: Published by the Author. 1898.

The Aseptic Animal Suture: Its Place in Surgery. By Henry O. Marcy, A.M., M.D., LL.D., Boston. Reprint. 1898.

The Pennsylvania Society for the Prevention of Tuberculosis, Organized April 10, 1892, Incorporated 1895. Report for the Year ending April 13, 1898.

Transactions of the Association of American Physicians, Thirteenth Session, held at Washington, D. C., May 3, 4 and 5, 1898. Volume XIII. Philadelphia: Printed for the Association. 1898.

Handatlas der Anatomie des Menschen. Mit Unterstützung von Wilhelm His, Professor der Anatomie an der Universität Leipzig. Bearbeitet von Werner Spaltenholz, ao. Professor an der Universität Leipzig, etc. Zweiter Band, 2 Abtheilung. Leipzig. 1898.

Atlas of Syphilis and the Venereal Diseases including a Brief Treatise on the Pathology and Treatment. By Prof. Dr. Franz Mracek of Vienna. Authorized translation from the German. Edited by L. Bolton Bangs, M.D., Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York; late Professor of Genito-Urinary Surgery and Venereal Diseases, New York Post-Graduate Medical School and Hospital. With 71 colored plates. Philadelphia: W. B. Saunders. 1898.

Original Articles.

TUMORS OF THE FRONTAL LOBES;[1] WITH SPECIAL REFERENCE TO A CASE WITH PREDOMINANT SYMPTOMS OF A NEURASTHENIC TYPE.[2]

BY EDWARD WYLLYS TAYLOR, M.D.,
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(From the Sears Pathological Laboratory, Harvard Medical School.)

THERE is, at the present time, a certain unanimity of opinion regarding the functions of the frontal lobes. Since the researches of Goltz, Hitzig, Ferrier and others, and the more recent somewhat speculative investigations of Flechsig, the feeling has constantly grown that we may confidently look for a so-called centre of the higher psychical functions in this portion of the brain. While accepting the general proposition it is perhaps as well to maintain a certain scepticism regarding the actions of dogs and monkeys deprived of their frontal lobes, particularly when such actions are made to serve as analogies for man. This is a warning which applies to much physiological experimentation, but certainly with particular force when an attempted comparison is made between the brute and the human mental faculties. Ferrier,[3] for example, on the basis of much careful vivisection, says: "We have therefore many grounds for believing that the frontal lobes, the cortical centres for the head and ocular movements, with their associated sensory centres, form the substrata of those psychical processes which lie at the foundation of the higher intellectual operations." The following sentences read: "It would, however, be absurd to speak of a special seat of intelligence or intellect in the brain. Intelligence and will have no local habitation distinct from the sensory and motor substrata of the cortex generally." Apart from the implied contradiction in the sentences just quoted, we think Ferrier and his colleagues of the experimental school go too far in their generalization as to the function of the frontal region. It is evident that the problem is an exceedingly subtle one and that, however valuable as corroborative evidence the actions of mutilated animals may be, still in last resort we must appeal to man alone in the determination of defects of those functions which man alone possesses. Fortunately there already exists a large number of observations which bear directly upon the general question and it is to these that we wish for a moment to direct your attention. From time to time cases have been collated and reported which tend in general to show that the frontal lobes of man have a somewhat definite relation to his higher psychical attributes, to which we may apply the general term of character, using that word in its broadest sense. Thus, Starr,[4] writing in 1884, found that in patients with disease of the frontal lobes one-half suffered a distinct mental disturbance. His own words are, "This (the mental disturbance) did not conform to any one type of insanity; it is rather to be described as a loss of self-control and change of character."[5] Further on he says: "Memory does not appear to be affected in disease of the frontal lobes."[6] Judgment and reason, on the other hand, he found particularly involved.

In 1888 Leonore Welt[7] described in much detail a large number of cases, some personal and others occurring in the literature up to that time, and arrived at more or less contradictory conclusions, although finding definite changes of character in a certain proportion of cases. Bernhardt[8] writing much earlier was unable to attribute any peculiar psychical function to the frontal lobes. Knapp (The Pathology, Diagnosis and Treatment of Intracranial Growths, 1891), on the other hand, is strongly inclined to the opinion that in this region of the brain is located higher psychic function. He is not dogmatic, and would by no means exclude other areas from a share in this attribute, a position which he holds in common with many others.

Frequent individual cases have been reported which have tended to substantiate the general theory of the psychic function of this portion of the brain. Moeli[9] describes an interesting case in which for four years there had been so marked a mental disturbance that confinement in an asylum was necessary. Autopsy showed a tumor in the second right frontal convolution.

Hebold[10] relates a case of sarcoma of the frontal lobes characterized by a very early mental change. Clouston[11] has reported a similar case and very many others are to be found scattered throughout the literature.

Starr[12] perhaps has been most energetic in urging the higher psychic function of the frontal lobes, and of the value of this fact in diagnosis. Worthy of renewed mention in this connection is the now classical "Crowbar Case" reported in the *Boston Medical and Surgical Journal* of December 14, 1848, and later published by Dr. John M. Harlow in 1869 under the title, "Recovery from the Passage of an Iron Bar through the Head." It will be remembered that the patient's recovery from the accident was complete excepting for his impaired mental state. Dr. Harlow writes (page 19): "Mentally, the recovery certainly was only partial, his intellectual faculties being decidedly impaired, but not totally lost; nothing like dementia, but they were enfeebled in their manifestations, his mental operations being perfect in kind, but not in degree, or quantity."

Monakow,[13] Bruns,[14] and notably Oppenheim[15] have recently collaborated the literature and reviewed the existing opinion on the subject without a complete unanimity of opinion. Bruns, both in his monograph and in a paper published in 1892,[16] is inclined to attach but little importance to the frontal lobes as related to higher psychic functions.

The weight of evidence, however, is certainly in favor of the generally accepted view, in spite of the fact that many individual cases, of which ours is one, would seem to controvert it.

The exact character of the mental disturbance, admitting its existence, has been the subject of much

[1] Our interest in what follows centres chiefly in the prefrontal area, namely, that portion of the brain lying anterior to the precentral sulcus; it has, however, seemed best to use the more general term, rather than insist upon a further subdivision.

[2] Read before the Boston Society for Medical Improvement, May 2, 1893.

[3] Functions of the Brain, 2d Edition, 1886, p. 467.

[4] Starr: American Journal of Medical Sciences, April, 1884, p. 366.

[5] Loc. cit., p. 379.

[6] Loc. cit., p. 380.

[7] Welt: Deutsch. Arch. f. klin. Med., 1888, xlii, p. 339.

[8] Bernhardt: Beiträge zur Symptomatologie und Diagnostik der Hirngeschwülste, Berlin, 1881; quoted by Oppenheim.

[9] Moeli: Charité Annalen, 1883, viii, p. 340.

[10] Hebold: Arch. f. Psych., xvi, p. 65 f.

[11] Clouston: Edinburgh Medical Journal, July, 1875, p. 11.

[12] Starr and McBurney: American Journal Medical Science, April, 1893, p. 362.

[13] Monakow: Nothnagel, spec. Path. u. Therapie, 1897, ix, i, Th. p. 491.

[14] Bruns: Die Geschwülste des Nervensystems, 1897, p. 94.

[15] Oppenheim: Die Geschwülste des Gehirns, Nothnagel spec. Path. u. Therapie, 1896, ix. i Th., p. 80.

[16] Deutsch. med. Woch., 1892, No. 7, p. 138.

study. Apathy, mental weakness, melancholia and dementia, mania and dementia, confusion and excited states have all been described in addition to the general changes of character to which reference has already been made. In 1889 Jastrowitz [17] described a certain form of disturbance, characterized by mental weakness associated with a peculiar excitability, to which he gave the name "Moria" [Century Dictionary definition: foolishness, fatuity]. This he believes to be pathognomonic of disease of the frontal lobes. His own words are: "Eine gewisse Form indess von Geistesstörung, den Blödsinn mit eigenthümlich heiterer Aufregung, die sogenannte Moria, sah ich einzig und allein bei Tumoren in den Stirnlappen." [18] Later in the same paper, he says: "Zeigen uns z. B. Kopfschmerz, Krämpfe, Erbrechen, die Existenz einer Neubildung im Gehirn überhaupt an, so dürfen wir dieselbe in die Stirnlappen versetzen, wenn die Patient mit Moria behaftet ist." [19]

Following Jastrowitz, Oppenheim [20] gave the name "Witzelsucht" to a somewhat similar symptom occurring in persons suffering from frontal lobe tumors. It is to be doubted, as Oppenheim himself implies, whether this peculiarity is of sufficient constancy to be of diagnostic worth.

Evidence goes to show that an affection of both temporal lobes is more likely to be productive of mental symptoms than when but one is affected, although so extensive a lesion is by no means necessary to bring about that effect. It would appear then that mental disturbance in general, and often of a peculiar sort, "Moria" (Jastrowitz), "Witzelsucht" (Oppenheim), occurs with greater frequency and earlier in tumors of the frontal lobes than in other portions of the brain. At present nothing more definite may be said.

Of other symptoms regarded as peculiar to disease of the frontal lobes several need mention. To Bruns, [21] chiefly, we owe an insistence upon a symptom of disturbed equilibrium, closely resembling the recognized cerebellar ataxia. He finds in this ataxia, on the whole, the most characteristic symptom of frontal tumors, and attempts to substantiate his claim by a number of carefully observed clinical cases. His views, certainly in the somewhat extreme form in which he states them, have not met with general recognition, although a similar disturbance of gait had been observed and reported by various writers, and various theories offered for its explanation.

The possible relation of this symptom of disturbed equilibration to another motor defect is of interest. Through the researches of Munk, Wernicke and others it has come to be generally accepted that the cortical areas which preside over the movements of the head, neck and trunk lie in the post-frontal region, the body area being above. It has, of course, been long determined, since Broca's first investigations, that the so-called motor speech area occupies the posterior portion of the third left frontal convolution. Leaving aside for a moment the aphasic disturbances, and directing our attention to the region lying above, we find a symptom, not infrequently described, of contractures of the neck muscles, often of an extreme degree. Knecht, [22] for example, describes a case in which the convulsions were characterized by opisthotonos and a violent bending of the head forward. In the intervals, the head could be neither extended nor turned on account of muscular contracture. Autopsy showed a tumor of the first and part of the second left frontal convolutions. Hebold [23] reports a similar case in which the head was held in a fixed position, through rigidity of the neck muscles. Oppenheim [24] has observed a permanent stiffness of the neck in a case of tumor of the left frontal lobe. There can be no doubt that this is a focal symptom of importance when it occurs, but naturally it must often be absent even in extensive growths of the frontal region when they are limited in their backward growth toward the Rolandic area.

Aphasia of the motor variety must of course occur when Broca's convolution is directly involved. This needs no further discussion. It is evident that the exact determination of speech defects is often difficult, especially in patients who for any cause are mentally impaired through intracranial disease. A certain slowness of speech, bradyphasia, has been described, but in the presence of an apathetic mental condition such a disturbance should be regarded as of doubtful significance as indicative of a true aphasia. Oppenheim [25] calls attention to a peculiarity of speech often observed in patients suffering from tumor of the left frontal lobe, characterized by a certain difficulty in starting the speech apparatus. The lips are moved before any sound is uttered, then words are said with difficulty and in a whisper, until finally speech becomes possible.

Agraphia has been observed as an accompaniment of motor aphasia in frontal tumors. In the doubt which exists regarding a special so-called centre for writing at the foot of the second left frontal convolution, nothing definite is to be said of the significance of the symptoms. In the determination of the existence of this disturbance also, the mental state of the patient must be carefully considered. If the growth lies at or near the base, sight and smell may be affected. Exophthalmos has been observed, no doubt as a result of pressure. Thomas and Keen [26] for example, have described an interesting case in which a unilateral exophthalmos was one of the symptoms of a non-infiltrating growth in the left frontal lobe. If the tumor grows backward toward those regions known to preside over various muscular movements the disturbance resulting is definite and conclusive. It is not our purpose to discuss these invasion symptoms, since they are thoroughly understood, and also since they did not occur in our case about to be reported. That they are of great value in diagnosis is self-evident. The difficulties arise in their absence.

Other symptoms of focal value, which have from time to time been described, are too vague to demand our attention in the present consideration.

Monakow [27] sums up the significant diagnostic points of tumor in the frontal lobes as follows:

(1) Marked intellectual defect, such as one sees in general paralysis, provided the disease is bilateral.

(2) A change of character in the sense of a moria.

(3) Finally that form of cerebellar ataxia to which, at least, an indirect focal indication may be attributed.

[17] Jastrowitz: Deutsch. med. Woch., 1888, xiv, p. 81.
[18] Jastrowitz: loc. cit., p. 111.
[19] Jastrowitz: loc. cit., p. 112.
[20] Oppenheim: Geschwülste des Gehirns., p. 82.
[21] Bruns: Deutsch. med. Woch., loc. cit.
[22] Knecht: Arch. f. Psych., xii, p. 487.
[23] Hebold: loc. cit., p. 552.
[24] Oppenheim: loc. cit., p. 83.
[25] Oppenheim: loc. cit., p. 86.
[26] Thomas and Keen: American Journal of Medical Sciences, November, 1896.
[27] Monakow: loc. cit., p. 496.

How relatively inconstant these symptoms may be we have already sufficiently seen.

From the general symptoms and signs of brain tumor under which we include epileptiform convulsions, tumors of the frontal region are in no way exempt. Here, as always, they occur under conditions of increased intracranial pressure. Vertigo, headache, vomiting, optic neuritis are, no doubt in general, manifested later than in cerebellar growths, but not later than in growths occurring in other parts of the cranial cavity. General symptoms, therefore, with marked and peculiar mental disturbance, must be our dependences in the diagnosis of tumor lying anterior to the precentral sulcus. The inconstancy of other symptoms renders them of value only when found.

That a definite diagnosis, even of the existence of a tumor in this region, may at times be impossible the following history will demonstrate:

Patient male, age thirty-six, well previously. Five years ago vertigo; later, irregular epileptiform convulsions, infrequent. Many symptoms of neurasthenic type, characterized chiefly by morbid fears. For four years no headache, vomiting or optic neuritis. Last six months increased severity of symptoms; sudden death. Autopsy: glioma of first and part of second left prefrontal convolutions.

I give the history in considerable detail, and almost in the words in which it was taken at the examinations, in order better to show the diagnostic difficulties it presented and the confusion which arose in the interpretation of the clinical picture, as it then appeared.

The patient was a man of exceptionally robust appearance, who had served in the army and had borne many hardships during that period, without in the slightest affecting his naturally excellent health. His later employment had been in the Agricultural Department of the Government; one requiring mental rather than physical endurance. He was unmarried.

Early history unimportant. Diphtheria at twelve, with no after-effects. Temporary paralysis of the soft palate. Absolutely no venereal nor alcoholic history; smoked excessively up to three years ago. No convulsions in childhood. Heredity, negative; except that one sister twenty years old has typical hysteroid attacks.

Present illness: About three years ago while at the World's Fair (1893) first noticed vertigo in walking, with mental confusion. No distinct attack nor loss of consciousness at this time. A year and a half later symptoms of a similar sort had increased in intensity. Thought he had a "bilious attack" at this time. Improved under calomel, but the sense of confusion persisted, and his unpleasant sensations became more protracted. Saw Dr. H. E. Marion of Brighton. Improved temporarily but grew worse again; excepting when quiet felt confused and especially so when in a crowd. Head felt as if "floating in the air"; legs felt weak; never actually staggered or fell. This was in the summer of 1894. In the following winter, about December 1st, grew still worse, and had the first typical attack, for which he now seeks advice.

While in his office alone, at noon, stooping, he started to walk toward another room, but suddenly lost consciousness and probably had convulsive movements (muscles felt so later). He was found under a chair uninjured. He had had no aura whatever; had eaten heartily in the morning and vomited on recovering consciousness. For two weeks he felt "used up" and stayed in his room; was unable to make mental or physical exertion and did not attempt to. At about this time he noticed a peculiar sensation, characterized by sounds, seeming to be very distant. This was and is especially annoying in a confused and noisy street; consulted an aurist, who removed cerumen.

Two weeks after the first he had a nocturnal attack, in which he bit his tongue slightly and awakened his bedfellow, probably by his convulsive movements. Felt badly the next day. No attack following this for eighteen months. During the interval had many subjective symptoms characterized chiefly by a feeling of apprehensiveness. He was unable to walk in a crowded street or go into a large building, and had numerous fears, so often associated with and a symptom of neurasthenic states.

He next consulted an ophthalmologist, who cut one of the extrinsic muscles of the left eye, in the hope of relieving the epileptiform seizures which had become most annoying. The operation was without effect. He had never had headache. The next typical attack was ushered in by an indefinite aura followed by convulsive movements; unconscious for ten minutes. In April and June, 1897, he had attacks. Before the last one he had been feeling "semi-conscious" to things about him. No escape of urine in any of the attacks. He thinks they are decreasing in severity and increasing in frequency. Last attacks occurred two in one day, in August, 1897, and were described in detail by his brother (a medical student), who saw them. They were apparently typically epileptiform. Has been taking bromide for a year in moderate doses, which he thinks has materially helped him. Thinks also he has at times aborted attacks by "random talking."

Physical Examination. — Strong, and particularly muscular man, weighing about one hundred and seventy-five pounds, good color and with every outward appearance of health; no disturbance of motility anywhere. No history of injury nor slightest evidence pointing toward a focal brain lesion. Sensation unimpaired. No hemianesthesia or other discoverable stigmata of hysteria. Knee reflexes normal. Eyes: good pupillary and accommodation reflexes, no narrowing of visual field. Heart: no murmurs, but a marked irregularity. Pulse 96, fair quality but irregular. General air and manner that of a nervous hypochondriacal man. Has read and talked much concerning his own case, and has apparently attached undue weight to many somewhat insignificant symptoms. Has ideas of a neurasthenic character referable to special senses and head generally.

[In view of what follows, these general deductions made at the first examination are important. The opinion was then expressed with considerable certainty that, apart from the epileptiform attacks, there was no sufficient reason to suppose other than a so-called functional disturbance. The etiology of the convulsive seizures remained unexplained, but with a certain leaning toward hysteria.]

The patient was seen a second time August 25th, five days later. He had felt somewhat better, reassured as usual, after seeing a physician. Had had, however, a sense of fulness in the head and the usual annoying apprehensiveness; for example, he is exceedingly timid about riding a bicycle, although he has al-

ways been accustomed to all sorts of athletic exercise. He described to-day a typical nervous attack characterized by ungrounded apprehension.

About a year ago the urine was examined by a competent person and said to have been normal.

September 4, 1897. Speaks of neuralgiform, neurasthenic pains on both sides of head, extending over eyes. Has had this for six months; it is apparently not affected by use of eyes. Inconstant, irregular, sudden onset, throbbing. Patient has slight external strabismus, probably induced by muscle operation done a year ago. (See former note.)

Thinking that possibly the effort to converge caused the head pain, an ocular examination was suggested. The patient said that after the last visit he was better, mentally, than he had been for three years. Was able to visit the Public Library and walk down Boylston Street to Park Square without great discomfort. This was more than he had done for several years. Was much encouraged in this regard.

September 20, 1897. Improved. Has consulted Dr. Standish, who prescribed glasses, which have relieved the neuralgic pain to a certain degree, and probably general symptoms as well. Is still somewhat impatient in manner, a peculiarity to which no special importance was attached at this time.

LETTER FROM DR. MYLES STANDISH.

Mr. B. has some astigmatism, some hypermetropia, and also queerly acting ocular muscles. I should want to put a good deal more study into the case than I have, to be absolutely sure of my position. However, we have worked out a prism which enabled him to walk in a crowd yesterday without discomfort, and I feel that there is a good chance that ocular strain was the starting point of the nervous disturbance. I have suggested a glass, which, if that supposition is true, may give temporary relief.

In reply to a later letter, Dr. Standish reported normal eye-grounds.

September 23, 1897. A call from the patient's brother, who gave the following report: He (the patient) had been much better. Pain over eyes had been relieved by the glasses, and he felt greatly encouraged. Shortly before leaving home for Washington he had a typical but mild attack; convulsive movements without loss of consciousness; head thrown back; palpitation of heart. From the account this attack was almost certainly hysterical in character (observation made at the time). Came out of it after a few seconds, and felt well except for an extreme degree of natural discouragement. He had been able to abort the attack for some minutes until the slamming of a door seemed to precipitate it.

LETTER FROM PATIENT, MR. B., DATED OCTOBER 14, 1897. EXACTLY AS WRITTEN.

I have postponed replying to your very kind letter until a sufficient length of time should have elapsed in which to determine definitely what, if any, change had taken place in my condition. My brother informs me that he has advised you fully as to the features of the attack which I had the day I left Boston, and except to say that it was the mildest spell of the kind which I have ever had, and that I nearly succeeded in controlling it, I think it unnecessary to further allude to it. Since my return to Louisville, I feel that I have slowly but surely gained ground. I have had no return of the attacks though on two occasions I feel sure that had I yielded I should have succumbed to these spells. Protracted conversation in which I am subjected to considerable mental strain appears to be a prime factor in precipitating them, and on the two occasions referred to, I was obliged to cease talking, not daring to attempt a renewal for at least five minutes. Another feature of my case, which may or may not be of importance, is the fact that I almost invariably feel worse immediately after meals than at other times, though the symptom is not nearly so marked as before I went to Boston. The glasses have practically eliminated the headache from my case, and except after dark, when they appear to have a confusing effect, I feel that they have assisted me greatly in getting about. One singular and to me unexplainable result of wearing them is the development of a partial deafness at all times and quite a marked obstruction of the hearing after dark, especially when situated amidst a confusion of sounds. Upon the whole, I have made quite an appreciable advance, and feel greatly encouraged. I am still taking forty-five grains of bromide daily. Thanking you heartily for the interest you have manifested, and assuring you that I will be very glad to write to you fully of the development of any new symptoms I am, etc.

[From the foregoing it will appear that up to this time, namely, from the first onset of slight vertigo in 1893, or even before, to the fall of 1897 — a period of four years — no symptoms, excepting the convulsive attacks, had appeared which might not be interpreted as a temporary derangement of the nervous system, merely. This idea was strengthened by the whole attitude of the patient toward himself, by the relief suggestion had given him, and by the improvement in many of the symptoms.] The subsequent history, ending in his death, was given me by his brother.

After returning South, the patient did well for a time, as indicated by his letter just read. Then obstinate constipation came on and renewed vertigo, so that he fell several times in the street — a new experience. He also had slight convulsive movements which he knew were coming by an antecedent sense of pressure in the head and flushing of the face. The constipation increased in spite of care, and the whole condition gradually changed for the worse; he was dull, apathetic, slow of speech, and could not collect his ideas to write a letter. In conjunction with this his supposed neurasthenic fears disappeared and his minor nervous symptoms were much improved. During the early part of January he had an exceptionally stubborn attack of constipation lasting about a week. His memory at this time was deficient and for two or three days he was delirious. This attack led to the supposition on the part of his physician of a primary intestinal disturbance as the cause of his varied symptoms.

Finally his brother was sent for. The bromide which he had been taking in moderate amount was temporarily discontinued. Speech at this time was difficult and slow; a few days later morning vomiting of clear fluid; convulsive seizures with unconsciousness of from fifteen to twenty minutes occurred during the night. A few days later, while bending over, general convulsion, unconsciousness, frothing at mouth. That day a series of convulsions, with vomiting of liquid food. Bromide again begun and attacks were cut off. At the urgent advice of his physician he left for the North the next day; good journey, but depressed. Has improved since being at home. About three days before his death, constipation and a slight epileptiform attack; no known stomach disturbance. Is looking well, only occasional headaches, which are intermittent; no apparent mental disturbance; no paralysis of any sort; has complained of pain in lumbar spine, pains in back of head and neck. Has an abnormal appetite; is not particular as to what he eats; has slept well since being at home.

Now has considerable difficulty in holding urine, is obliged to go at once when he has the desire; has occasionally passed small amount unconsciously. Brother had noticed slow pulse, 50 or less, while at the South. Weight about 185 and excellent condition physically. Memory poor, occasional lapse of consciousness; asked the same question over twice, etc. Was about as well as usual Wednesday evening, February 2, 1898.

Thursday woke at 5 A. M. complaining of intense pain in the back of the head, which apparently was immediately relieved by copious vomiting. During the day had considerable pain and repeated lapses of consciousness; toward evening grew comatose, and when seen by his brother could not be aroused. Pulse very slow, under 50. Heart-sounds impure; respiration intermittent; stimulants produced only temporary relief and death resulted two hours later with a primary failure of respiration. Pulse could be felt three minutes after respiration had ceased. This final fatal attack was very similar to a less severe one shortly before, already described.

The sudden and altogether unexpected death of the patient prevented an examination on my part, as had been planned. It was, however, clearly evident from the symptoms developed during the last few months and from the outcome that he had been suffering from a cerebral tumor, whose location remained obscure.

In a later conversation with his brother it appeared that an extremely slight speech defect had existed for about three years, consisting merely in the inability to recall quickly a word. On one occasion, for example, the inability to say the word "bag" seemed about to bring on a convulsive attack. When the word was supplied the threatened motor excitement passed off at once and completely. This aphasic tendency was distinctly better during the last week of his life.

Autopsy. — It was impossible to perform an autopsy until nine days after death. The body and brain were, however, well preserved and appearances were in no way obscured. Examination of the brain alone was made. There was no deformity of the skull, nor external appearance of new growth. The dura was very tense, but beyond this presented nothing abnormal. Considerable blood in the longitudinal sinus. Dura strips easily and normal on inner surface. Convolutions much flattened and pale.

Over the left first temporal convolution blood is completely absent from veins over an area approximately two inches in transverse to two and a half inches in antero-posterior diameter. The brain at this area shows a practical obliteration of convolutional structure. On palpation there is a distinctly increased feeling of resistance over that of the corresponding area of the opposite side. The left hemisphere, looked at laterally, seems to stand at least a quarter of an inch higher than the right. The same appearance as just described is present on the mesial aspect of the left hemisphere involving the frontal convolution and extending downward to the corpus collosum (see Figs. 1 and 2).

After hardening in formalin, 10 per cent., frontal sections were made through the tumor mass. On the outer surface of the hemisphere the new growth occupied the entire first frontal convolution with the exception of a very small area at its anterior part. The growth had also begun to invade the posterior portion of the second frontal convolution. Its outlines were not sharply marked out, but it certainly did not extend beyond the precentral sulcus. The tumor is most marked in the first frontal convolution, where it evidently began.

On the mesial surface of the brain the tumor extends through the entire first frontal convolution and involves also the gyrus fornicatus in its anterior half. On cross-section of the tumor the cortex shows a distinct involvement as was also evident from the surface appearance. The outline of the cortex as distinguished from the white matter may, however, still be made out.

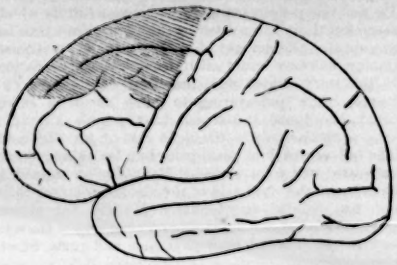


Fig. 1. Outer surface. Shaded area represents tumor.



Fig. 2. Inner surface.

(To be continued.)

TRAUMATIC VENTRAL HERNIA.[1]

BY J. B. BLAKE, M.D.

The following two cases, admitted to the First Surgical Service of the Boston City Hospital, seemed of sufficient interest to report and comment upon. Both were injuries of the abdominal parietes, following immediately upon trauma. The second case is reported by permission of Dr. H. W. Cushing.

Case I. J. C., thirty years old, a teamster, was admitted to the City Hospital January 10, 1898. He was seen by the writer about 7.30 P. M., shortly after his admission, who found him perfectly conscious lying upon the accident table. He gave the following history: At 1 P. M. that afternoon, while unloading a team, he slipped from the wagon and struck on the

[1] Read before the Boston Society for Medical Improvement, May 2, 1898.

end of a crowbar, which he was using. One end of the bar was on the ground, and he fell upon the blunt upper extremity. He then fell upon his back in the street. He was not stunned. The pipe which he had in his mouth did not fall, nor did it break, and the man continued smoking. He put his hand to his side, under his clothes, and not finding any blood, concluded that his abdomen was only scraped. He climbed into his team and was driven to his room on Emerald Street. Unassisted he went up three flights of stairs to his room, stripped and went to bed. He then noticed for the first time a small amount of blood on his shirt, and a wound just above his right groin, from which a yellow mass about two inches long protruded. He sent for a physician, who happened to be out; another physician came and examined him, covered the protruding mass with gauze and sent him to the hospital. His overalls, pants and drawers were torn cleanly at the level of the wound.

When first seen, six and one-half hours after the accident, he was rather pale, perfectly conscious, not excited nor in pain, temperature 100°, pulse 70. He had not had vomiting, hiccough or other symptoms. Examination showed a strongly built man, whose abdomen on the right side was marked by a transverse gaping wound, one inch long, just above and a little outside the external abdominal ring. A small amount of straw-colored serum was escaping from it. The house surgeon told me that nothing protruded from the wound when he first saw it, an hour before, but that there was a soft swelling just above the wound which partially disappeared on manipulation and during the cleansing and shaving preparatory to operation. There was some question at this time whether the patient really saw anything protruding from the wound. His story after the operation was much more definite than before.

The site of the operation was again carefully cleansed with 1 to 6,000 corrosive sublimate, the nozzle being gradually introduced into the wound, which ran upwards and outwards towards the anterior superior spine. The skin was then incised and the wound was found to be three inches long and superficial to the external oblique aponeurosis. At the upper end a bit of omentum, about the size of the terminal phalanx of the thumb, was found protruding through the fleshy belly of the external oblique. It was not wounded nor strangulated, but several black hairs, apparently pubic, were found scattered over it. About three inches more of omentum were easily pulled out, bringing with it a few more hairs and a little more serum, but no blood nor turbid fluid, no sign of intestinal contents. It was washed with salt solution and replaced, and some salt solution put into the abdominal cavity. The finger introduced did not find signs of any abnormal condition. The wound seemed to be a splitting apart of the fibres of the muscles — rather than a clean cut — and resembled somewhat McBurney's incision wound for appendicitis. It was just below the level of the anterior superior spine and about one and a half inches above Poupart's ligament. It was packed lightly with iodoform gauze and the skin incision sutured; baked dressing and swathe. For two or three days there was considerable abdominal distention which was relieved by a high enema, and for a week it was impossible to move the bowels except by enema. The pulse and the expression of the face were always good. Packing removed on the third day, bringing with it a small amount of clotted blood; otherwise uneventful recovery. Discharged February 18th. He did not return to work until the end of March and then began his old occupation of teamster and has worked regularly since, without symptoms referred to the site of injury.

When last seen, about ten days ago, the operation wound was a firm line scar, which does not bulge more than the other side of the abdomen when patient coughs. He wears a padded canvas swathe. On looking him over, the results of several other accidents were discovered. On his forehead is a long scar — and the tips of the second and third left digits are missing — the result of an encounter with a hay cutter, for which he says he was treated twenty-five years ago by Dr. J. *G.* Blake. On the left leg is a broad purple scar, one inch long, just below and behind the head of the fibula, where he was struck, since he left the hospital in February, by a bullet accidentally fired into the street. He may be said to have suffered many things from many men, and to have recovered from them all rather better than might have been expected.

Case II entered the hospital on December 3, 1897. He was thirty-eight years old, and gave a history which seemed entirely inconsistent with the injuries which he presented. No amount of questioning, or cross-questioning, however, could elicit from him any variation in this story, which was, that four days before entrance, while endeavoring to jump across a small brook, he slipped and struck heavily upon his right side, particularly upon the right side of his *abdomen*. The fall caused him some pain, but he walked home unassisted and went to bed. Next day he noticed a swelling of the right side of the abdomen, larger than the fist, painful and tender. He did not notice whether it increased in size upon coughing. He was sent to the hospital by a physician, and came in an electric car.

The man was above medium size, and strongly built. A systolic murmur was heard at the cardiac apex. This murmur was not transmitted to the axilla. Cardiac hypertrophy was not present. On the right side of the abdomen, just below the ribs and extending into the flank, was a swelling which obliterated the natural contour of the waist. It was not discolored, was slightly tender and slightly dull upon light percussion.

There was also an ecchymosis covering the perineum from coccyx to scrotum, and another ecchymosis over the posterior part of thigh, just above the popliteal space.

The finger-nails were short and broken, and the finger-tips hard, discolored and contused, with a certain amount of blood under the skin. He did not present symptoms referred to either the peritoneal cavity or the alimentary tract. Except that he was sore and bruised, he was comparatively comfortable. It was considered that operation might be necessary, and he was prepared for it. A moist dressing of corrosive sublimate was placed over the abdomen and a tight swathe applied; he was given a diet of meat broths.

The swelling, which seemed to be in the abdominal wall, slowly subsided; ten days after entrance it had practically disappeared, leaving a hard edge, somewhat like the crater of an absorbing hematoma. The ecchymosis on thigh and perineum cleared up, he was allowed to have his clothes, and was about to be dis-

charged, when it was discovered that the subcutaneous crater-like edge was apparently more distinct than before, and that on coughing nearly the whole of that side of the right abdomen which is covered by the muscular belly of the external oblique bulged outward to an extraordinary degree; it was as if a considerable portion of the abdominal contents was pushed through the wall and presented immediately under the skin. The rounded edge extended from a little above the level of the umbilicus, at the outer edge of the rectus downward and outward in a curve, to be lost below the anterior superior spine of the ilium. This part of the wall was softer than the rest, and bulged a little even when the patient was breathing naturally. After careful examination the diagnosis was made of rupture of parts of one or more muscles of the abdominal wall, and a consequent traumatic ventral hernia (though it must be said, while in the minds of some of the surgeons, this diagnosis was only provisional, to the writer it seemed absolute).

Patient was again put to bed, and developed incidentally a mild tonsillitis. As the condition of the abdomen did not change and the patient was a laboring man, and this seemed to be a disabling injury, operation was advised, requested by the patient, and performed by Dr. Cushing about three weeks after the original injury.

An incision was made through skin and superficial fascia, in the direction of the fibres of the external oblique, beginning about one and one-half inches inside, and sloping above anterior superior spine, and going to edge of rectus. Fibres of the external oblique were carefully laid bare, and no laceration could be discovered, either of the muscular belly or of the aponeurosis. The external oblique was split and the internal laid bare. This was also intact. The sheath of the rectus was nicked, and the muscle found to be normal. The only positive condition suggesting the injury discovered was a certain thickening along the edge of the rectus in the aponeurosis of the external oblique, corresponding to the crater-like edge above mentioned, which the writer had taken to be the contracted edges of the ruptured muscular fibres.

The wound was closed, layer by layer, with catgut, and the skin by buried catgut suture. The result was uneventful healing by first intention, and a faint line scar. Three weeks after operation there was still bulging on moderate coughing, though less than before. About this time the patient was examined by Dr. Knapp, who found that the muscles seemed to react normally to the electric currents, but required distinctly stronger currents than upon the other side. On February 7th he was discharged to the Nervous Out-Patient Department, to which he returned several times, and during which time he improved steadily but slowly. Since the middle of February he has been lost sight of, and in spite of all efforts, no trace of him can be discovered.

According to the usual definition, a *ventral* hernia is one appearing at a part of the abdominal wall where no opening or point of diminished resistance normally exists. A *traumatic* hernia is one which results from accident or operation, regardless of situation. The post-operative hernia which are extremely common form a distinct class by themselves, and will not be considered in this brief paper.

Given a perforating wound of the abdominal wall, and the protrusion of viscera through it, the surgeon is confronted by four principal sources of danger: (1) hemorrhage; (2) injury, often laceration, occasionally strangulation of the protruding viscera or of the abdominal contents; (3) infection of peritoneal cavity; (4) resultant weakness of abdominal parietes.

From a moderately extensive examination of the literature it would seem that cases of traumatic ventral hernia are not often considered of sufficient importance to report, and when reported are classified under a variety of headings. The number of references is comparatively small, though the condition itself is not uncommon. Probably the first case recorded is found in Roman history, and occurred during a pugilistic contest. The contestants were exchanging alternate blows. One insisted that the other should place his fist above his head and while in this defenceless position drove his hand through the opponent's abdominal muscles and tore out his entrails. The judges awarded the laurel wreath to the dying man. This episode has been immortalized by two of Canova's well-known statues.

Coming to more modern times, in 54 cases of stab wounds and penetrating wounds of the abdomen found in the recent records of the Boston City Hospital hernia was present in 12 (about 22 per cent.).

Traumatic ventral hernia may follow gunshot wounds, stab wounds or perforating wounds made by blunt instruments, or direct violence, as in the cases recorded.

Hernia following gunshot wounds is extremely rare. Otis found but two cases reported to the surgeon-general during the Civil War. Connor says this is probably less than the actual number of cases which occurred and reports one more case; and Patzki, in 1872, reported a single case (omentum presenting, not touched till eighth day, then cut off with wire ecraseur without opening abdomen. Recovery). The indications at present in this condition would be immediate laparotomy, the hernia being entirely secondary in importance to the probability of injury to the viscera.

Hernia following sword or bayonet wounds is so rare as to have almost escaped mention in war reports.

The wounds most frequently followed by hernia are knife wounds (cuts or stabs) and wounds caused by falling upon broken glass or upon sharp instruments. They vary in size from a fraction of an inch to a foot or more. Hunter reports case of a girl eight years old, who fell while carrying a whiskey bottle. The wound was only three-fourths by one-half inch, yet the entire stomach was found outside the abdominal wall. The case recovered. Caine and Cuff report cases illustrating the other extreme, in which two men slashed themselves with razors, one vertically, the other horizontally. In both cases the stomach, almost the entire small intestine, the colon, and the omentum were found outside the abdominal parietes, yet both recovered. Clark reports a five-inch knife wound, in which the entire small intestine, colon and omentum protruded, and the omentum was found covered with shavings; the man recovered and was well three years later. Frank describes a case of multiple stab wounds, which occurred in Vienna, in which omentum presented from one wound, and gut, which was wounded, from the other. Recovery. Finally, Mitra describes a very unusual case, that of a Hindu who was suffering from marked ascites, and who slipped and fell to the floor after getting out of

bed. He ruptured his abdominal wall above the umbilicus, small intestine protruded; and was also ruptured completely across the circumference; it was cleaned and stitched to the abdominal wall *in situ*, forming a double artificial anus. This case died.

(1) Hemorrhage in these cases will depend on the position and size of the wound. In several reported instances the hemorrhage was extremely severe, and was from the deep epigastric, the internal mammary or the circumflex iliac. In the case referred to above, in which the abdomen was cut transversely from one anterior superior spine to the other, both deep epigastric arteries were severed, and the patient was pulseless. All four ends were tied, and a quart of hot salt solution (temperature 108°) was put into the median basilic vein, followed by a pint of coffee by rectum. This energetic treatment saved the man's life. The difficulty frequently found in these abdominal wounds is that the severed vessels contract into their sheaths; the incision should be enlarged, if necessary, and the vessel picked up and tied. Heat is of extreme value in these cases.

(2) Laceration of protruding gut should be closed by Lembert sutures. In the few cases in which this is not possible an artificial anus may be made.

Strangulation, or incarceration, is relieved by enlarging the incision.

(3) Infection may be introduced into the peritoneal cavity at the time of the accident, or afterwards. It may be due to material from outside, or to the contents of wounded viscera. It is the most serious of the dangers with which the surgeon is confronted, for it is present in greater or lesser degree in every case.

If the intestine is wounded, after the rupture is closed the peritoneal cavity should be irrigated thoroughly and drained, according to the majority of writers. But cases of recovery are reported in which the abdominal wound was sewed up tight. If the intestine is not wounded it should be most thoroughly cleansed and then returned; and the same is true of the omentum, save that in cases in which a small amount of omentum has been exposed for some hours it is probably better to tie and cut it off.

The length of time intervening between accident and operation has a most important bearing upon infection; the longer this interval, the greater the necessity of drainage. Frank, of Vienna, insists particularly upon drainage in every case where there is any injury of any viscus, and advocates cleansing the peritoneal cavity by gauze sponges entirely without irrigation. Infection is frequently absent where it might be most expected. Dr. Brough reports a case of a sailor stabbed by a case-knife in the hand of a comrade at sea. Gut and omentum protruded. The captain washed the protruding viscera in water from the cask, pushed it back and sewed up the wound with a sail-maker's needle and thread. When Dr. Brough saw the case, ten days later, the man was well and sitting up, and had not had any symptoms of infection.

(4) Resultant weakness of the abdominal walls is greatest in extensive wounds and in wounds which are drained. Its dangers are slight when compared to infection, and it should be allowed to exert only a secondary influence upon the choice of treatment of the wound.

The hernia consists most frequently of omentum; then come small intestines, large intestine and stomach in the order named, or two or more of these may appear together. The hernia may immediately follow the trauma, or a varying interval may elapse before it appears. In these delayed instances, the protrusion is usually due to vomiting, muscular exertion or both. In several instances men have run, walked or rode some distance, before realizing that they have been wounded.

The most important rule in operating is to begin at the earliest possible moment after the accident. The next most important is the thorough cleansing of all exposed viscera before operating. In the majority of cases the incision should be enlarged, usually in the direction of the original wound unless this would involve one of the larger arteries. Torn or dirty edges of the wounds should be resected. Stasis of the bowels frequently follows operation, and is probably due to a mild degree of peritonitis. It may be treated by immediate and repeated small doses of calomel (one-tenth to one-fourth grain every hour till movement, or ten doses) and high enemata. Reboul recommends ice on the abdomen as a preventive of inflammation.

The diet should be meat broths. The drainage may be removed on the third to fifth day.

The prognosis in cases in which the viscera is not wounded is good. Only one report of death has been found in cases of this variety.

The second case reported at the beginning of this paper was supposed to represent a variety of injury which seems to be very rare. Rupture of the abdominal wall, without external wound, is found usually as a result of severe violence inflicted by a blunt object, such as a wagon shaft. The writer has been able to find only very few cases which seemed to be authentic; of these, three were due to the impact of a wagon shaft, and one to a fall upon the handle of a hammer. Dr. Monks has kindly given me notes of one of these cases. A man, standing on the running-board of an open car, was struck in the abdomen by the tip of the shaft of a passing team. A tumor, the size of a fist, appeared under the skin, and surrounded with much ecchymosis and swelling. The tumor increased on coughing or muscular exertion. The skin was not broken.

Dr. Monks saw the case twice, two weeks and eight weeks after the accident, the hernia remaining unchanged, though all the ecchymosis had disappeared at one and a half years later; the man died of aneurism of the aorta. At the autopsy, Dr. Whitney found a rent in the muscular bellies of the abdominal wall, through which the intestines protruded.

Another interesting case is reported by Lotheisen. A bicycle rider ran into a wagon shaft, which struck him on the right just above the umbilicus. He had some pain, and went to bed. In a day or two he got up, but at the end of a week began vomiting, and was seen by Von Hacker, who found a tumor size of apple at point of contact. The man's general condition became rapidly worse. A diagnosis of tear of rectus with protrusion and incarceration of gut was made. Patient died during the operation and the autopsy showed a bit of transverse colon protruding and attached all around the edges of the tear. The man could have been saved by earlier operation.

The other two cases, one from the City Hospital Reports, and reported by Platt, were smaller in extent and existed for years. Hutchinson, in a paper on "Lumbar Hernia," says that five of twenty-nine cases which he reported were following trauma more or less.

closely, and were apparently through the abdominal wall rather than the triangle of Petit. If this is so, they must be considered true ventral hernias.

Why the abdominal wall is ruptured in some cases and not in others is to be explained partly by the size and shape of the impacting body, and partly by the rigidity or flaccidity of the muscles at the time. If the impacting substance be sharp or small, the wall is likely to be perforated. If larger and blunt, the chance of injury to internal organs without laceration of muscles is increased. If the wall is tense and contracted at the time of impact, the chances of laceration are increased. If relaxed, it is carried before the impacting object.

The treatment of these cases is non-operative, except in cases of incarceration or strangulation. A well-fitting swathe appropriately padded will usually allow the patient to carry on any but very laborious work. The prognosis for life is good; for the hernia, bad. Operation, if resorted to, should be done when other methods of treatment are found to be insufficient to retain the hernia and permit the man to work. In any long-standing case the gut will probably be found closely adherent to the edges of the ring. After breaking up the adhesions the opening should be closed as in any ventral or umbilical hernia.

The case reported at the beginning of the paper was probably a contusion and hemorrhage into the muscle, with an injury to the lower intercostal nerves at point of contact. The only symptom of hernia which it did not possess was the bulging of the wall when patient was breathing naturally and not coughing. So far as the writer can discover, this case is unique.

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Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 16, p. 391.)

REGULAR Meeting, Friday, February 11, 1898, DR. C. B. PORTER in the chair.

DR. FITZ: It seems to me the case illustrates that with favorable conditions immediate or early laparotomy is likely to prove a success and in this instance it was to be expected after a week had elapsed and the general condition was constantly improving, that recovery was to be anticipated. The occurrence of a second perforation, however, proved to be irremediable and it may be added that at the post-mortem examination some thirty or forty ulcers were found in the intestine.

I will now present for your examination a case of

ANEURISM OF THE ARCH OF THE AORTA (WITH RADIOGRAPH).

The patient, a Swede, recently entered the hospital. He worked in an iron foundry and until some six weeks ago was supposed to be in fairly good health. At that time he had attacks of dyspnea for the treatment of which he came to the hospital. There was also some disturbance of voice. He has had no pain whatsoever, but there has been slight difficulty in swallowing solid food. I have outlined on his chest the region of dulness which is connected with pulsation over the upper part of the sternum, although in the sternal notch there is no tumor to be felt. He has not only difficulty of vocalization, but also a peculiar barking, high-pitched cough. Dr. Coolidge has examined the larynx and has found paralysis of the left vocal cord. We have, therefore, dulness over the upper part of the sternum, paralysis of the left recurrent laryngeal, pulsation in the region of dulness and difficulty in swallowing and occasional attacks of dyspnea. Mr. Dodd has taken a radiograph of his chest, which shows at the upper part of the sternum a rounded, light patch corresponding to the position of the aneurism, which is evidently a dilatation of the transverse portion of the arch of the aorta. The patient has another sign to be observed in a certain number of cases of aneurism, namely, a tracheal tug.

The next case is one of

SUCCESSFUL RESECTION OF THE PYLORUS FOR CANCER,

which I will show in connection with Dr. Conant and Dr. Porter, as we all had to do with the treatment of this patient. It is now six weeks after the operation and the patient and the specimen are present. This man, forty-seven years old, entered the hospital December 7, 1897. About a year previous he had suffered from cutting epigastric pain after eating, not relieved by pressure or by vomiting and made worse by food. There was frequent vomiting at the outset and the vomitus occasionally was brown like coffee grounds and the stools also were occasionally dark. During the first three months the vomiting became less and finally ceased. The quantity of the vomitus was considerable, about two quarts, but it was not particularly offensive. Six weeks before entrance and nine months after the onset of the symptoms he noticed a lump in the epigastric region. When he entered the hospital the tumor was elongated, rounded, nodular, movable, apparently about the size of a small banana, and the dilatation of the stomach was such that when inflated it occupied the greater part of the abdomen. The general appearance was good, emaciation was not extreme, the mental condition was excellent and the suffering was chiefly from the distention of the stomach. He was informed of the probable nature of the malady, its course if let alone and the prospect of relief from an operation which was necessarily serious. After a few days of consideration he returned for operation, which, in the absence of Dr. Porter, was performed most successfully by Dr. Conant.

DR. F. B. HARRINGTON: The closure of the abdomen without drainage is being tried more and more. It is certainly very surprising, to one accustomed to drain septic cavities in the open abdomen, to find that some of these may be treated by complete closure of the wound without drainage. I think there is danger of carrying this plan too far. I should not feel safe, in case of escape of fecal contents into the abdominal cavity, in closing without drainage.

If we can insure safety by filling up the peritoneal cavity with salt solution what need is there of all our preliminary aseptic preparations of the skin, instruments, etc.? I do not wish to imply in the least that Dr. Beach's case of typhoid perforation died from this cause. I do not believe that the use of the "normal salt solution" contributes greatly to the safety of complete closure without drainage. We are learning something of the wonderful power of the peritoneal cavity to take care of septic material.

Some abscess cavities may be emptied by tapping and never refill, but one never knows which will refill and which will not. If there has been a soiling of portions of the general cavity by septic material then I believe that it is safer to drain these portions. If there has been only close proximity of septic material and the organs in which the septic material is found can be removed entirely, as a Fallopian tube or an unruptured appendix, then I believe that complete closure may be safe.

DR. FITZ: A word in relation to the temperature chart of the case of typhoid perforation may be said in reply to Dr. Harrington. The elevated temperature following the operation is not to be attributed so much to the operation as to the typhoid fever. The curve is carried on as continuously and uniformly as though nothing had happened to interfere with the progress of typhoid and gives no evidence of any disturbance from leaving the wound undrained.

DR. BEACH: The abdominal wound was completely closed without drainage after the *first* operation — a gauze drain was left in after the *second* operation. Recognizing the value of drainage after operations involving the peritoneal cavity, I have been surprised by my own recent experiences and those of others in cases of complete closure of the abdominal cavity after the evacuation of septic fluids even *with streptococcus infection*, and while I am not prepared to advocate it in all cases, here seemed to be one where it was the only practicable course. If the abdominal cavity had not been made aseptic by the prolonged and careful washing with hot water any possible remnant of sepsis seemed to be provided for by the normal salt solution to dilute it and promote its elimination. The universal diffusion of the septic fluid made it impossible to judge where drainage would have any value. Owing to the excessive distention of the intestines by gas in spite of the rectal tube so much pressure would have been exerted before the drains as to have robbed them of any special value. I believe that anything short of sewing up the wound tightly would have favored the appearance of the intestines among the dressings. The second operation showed that the abdominal wound closed and completely shut off the abdominal cavity from the outer air.

There were a number of superficial stitch-abscesses that would not have prevented recovery in themselves. The second perforation and the necrotic condition of the intestines were the evident causes of death. The collapsed intestine offered no obstacle to the insertion of the drain in *this* instance, nor to its working for the benefit of the patient had he survived.

I ought to say, Mr. President, that it seemed necessary to close the abdomen if we did not want to have the larger part of the intestine forced out into the dressing, there was so much tympanites.

DR. MAURICE H. RICHARDSON gave

TWO CASES OF CANCER OF THE BREAST ILLUSTRATING THE DANGERS OF EXPLORATORY PUNCTURE AS AN AID TO DIAGNOSIS IN DOUBTFUL BREAST TUMORS.

Within the past year my attention has been called to the grave dangers of exploratory puncture in doubtful breast tumors. By exploratory puncture is meant the removal by means of a needle or a punch of a small portion of the tumor for microscopic examination. The dangers which the following cases emphasize are two: first, that of overlooking a carcinomatous nodule really present, and secondly, that of spreading an extensive and hopeless carcinomatous infiltration. In both the following cases the disease was overlooked, and valuable time was lost; in the second, and probably in both, the malignant cells were extensively disseminated early in the disease.

CASE I. Mrs. M. D., age thirty-six years. I saw this patient, a very stout woman with large breasts, with Dr. E. F. O'Shea, of East Boston, on July 26, 1895. She was seven months pregnant. In the beginning of her pregnancy she had noticed an enlargement — a caking — of the left breast. She was examined at the Out-Patient Department of the Massachusetts General Hospital, where an exploration was made with the Mixter punch. A fragment withdrawn from the breast was examined microscopically and found not to be carcinoma. The patient was reassured and sent home.

The breast continued to enlarge and to become harder and more painful. I found, on July 26th, a greatly enlarged, hardened breast, extensively infiltrated with what seemed to be malignant disease. The skin over the breast was thickened, edematous, slightly reddened and minutely puckered. The axilla was filled with resistant movable masses. On July 31st I removed the breast and overlying skin, the pectoralis major, and the contents of the axilla. The subclavian triangle was also dissected, and glands removed. The fetus died and was removed some days later. She was discharged August 23d, with a granulating surface. On December 3d there was an extensive recurrence and she died a few months later. The only disadvantage was that the exploration seemed to justify a security which the event showed to be unwarranted, a security resulting in a fatal loss of time.

CASE II. Miss E. H. H., aged fifty, came to see me on January 16, 1897. On September 7th, she first noticed a bunch in the left breast. There was no pain in it, except that she has always had darting pains through that breast. She had been told that it was muscular rheumatism. Since the first appearance of the bunch there has been a sensation of stinging, and the breast has become much enlarged. Two weeks before I saw her an exploratory puncture had been made by a surgeon of great skill and experience. The portion removed was submitted to the microscope, and nothing malignant was found. In spite of this favorable opinion, however, it was pro-

posed to make a second puncture. This the patient was unwilling to permit. On examination I found the left breast somewhat enlarged. There was considerable ecchymosis about the punctured area, which was situated at the upper and outer quadrant. This portion of the breast was thickened, hardened, and somewhat irregular. No distinctly outlined tumor could be made out. The skin over the upper and outer half of the breast was thickened, reddened, resistant and edematous — in fact it had the appearances seen in diffused mammary cancer. These physical characteristics were not incompatible, however, with those to be expected after puncture and hemorrhage. Nothing abnormal could be detected in the axilla or above the clavicle. The patient was a stout robust woman. The tumor appeared to be a rapidly-growing carcinoma of the medullary type. Immediate exploration with the knife was advised.

The tumor was dissected on Monday, February 1, 1897, and a large portion removed for microscopic examination. The section presented the usual gross appearances of mammary cancer, appearances which with the history and complications present, in my opinion, a more reliable proof of cancer than a microscopic examination alone. An immediate microscopic examination confirmed the diagnosis; whereupon the breast and overlying skin were removed, with the pectoralis muscle. The axilla was found to be filled with secondary deposits closely adherent to the axillary vessels. The pectoralis minor had in its substance a small nodule which, with that muscle, was thoroughly removed. The dissection was carried to the first rib.

The examination of the tumor and pectoralis major showed a clear space between the two; a nodule was found among the fibres of the pectoralis major corresponding in position and size to that in the pectoralis minor, and in the same general line with the two nodules just described there was a stellate malignant mass in the axillary fat not connected with the enlarged lymph nodes.

The infection of the pectoralis major, the pectoralis minor, and the axilla, in a straight line, shows, I think, a direct contamination of previously healthy parts by the exploring punch, for the nodules were of about the same size and age, and in the muscles, at least, they were the only ones found.

Infiltration of the pectoralis muscles, especially the major, is by no means infrequent; the infection is, however, multiple if remote, or extensive if direct. Here were two remote masses growing in the substance of the muscle in such a line as a needle would make, and not in the ordinary course of the lymph channels.

Though the operation was extensive, I regard the prognosis as practically hopeless.[1] Indeed, all infiltrating carcinomata of the breast are probably beyond cure.

The time has come when all suspicious breast tumors should be explored so thoroughly that inspection and touch are possible. Even then a nodule may be overlooked. Exploration with a needle or a punch not only exposes the loose spaces about the tumor to infection, but it gives, by failing to extract a specimen from the affected spot, a false and highly dangerous sense of security. The same dangers exist in needle explorations of abdominal tumors. Some forms of malignant disease will follow the track of the instrument and appear at the skin in an incredibly short space of time. I have seen, for example, the stitch-holes of a closed abdominal wound, after nephrectomy for sarcoma of the kidney, burst out with luxuriant masses of recurrent disease. Moreover, in the exploration of abdominal tumors there is the added danger of hemorrhage. I believe that the exploratory punch, admirable as it is as an invention, must be discarded for safer and more thorough methods of exploration.

[1] She died in February, 1898.

Dr. Elliot: Dr. Richardson spoke very positively about the necessity of drainage in intestinal resection, saying that he does not see how any case can get well without it. My experience is quite the other way. They do beautifully without drainage. I scarcely ever drain an intestinal resection. I have repeatedly dropped the ends in the middle of the abdomen without any clew to them at all and they all do perfectly well without a stitch-leak. I think the peritonitis glues them together. It is quite another matter with the Murphy button, which crushes the tissue. I think the Murphy-button cases ought all to be drained, because that is done on another principle. I have done more than a dozen cases of resection which I have not even been anxious about and which have not been drained.

Dr. E. S. Wood: I have a very rare specimen of urine to show from a case of true albumosuria. I will take but a moment of your time simply to illustrate the necessity for always relying upon something beside the nitric-acid test for albumin before arriving at the conclusion that you have to deal with a case of severe albuminuria. Upon doing the nitric-acid test for albumin you will at once draw the inference that there is somewhere in the neighborhood of one-fourth to one-half per cent. of albumin present. I think you can all see without trouble that there is a very heavy zone of what is apparently albumin, and it has all the appearances of a zone of coagulated albumin, being distinctly defined on both the upper and lower surfaces. It is a curdy and dense zone, which corresponds to about one-half per cent. of albumin. Upon trying the heat test for albumin with acetic acid (or without it) you will notice that upon warming the fluid slightly you get a precipitate which corresponds to the result which we have just obtained with the nitric-acid test. You see now a heavy coagulum very similar to what you get with a regular albuminuria. Upon continuing the heat to separate the albumin, as you would in separating ordinary albumin, you find to your astonishment that it completely disappears with the exception of a slight turbidity, which is due to a trace of serum albumin in the urine. This shows the necessity of carrying out the heat test to the boiling point, or close to the boiling point, before deciding as to the presence of albumin. The heavy precipitate will reappear upon cooling, which is one of the peculiarities of albumose. This heat test will react with either acetic acid or a few drops of nitric acid. In order to be sure that the substance is albumose you can apply the biuret reaction, which consists in rendering the urine alkaline with sodic hydrate and adding a few drops of a very dilute solution of sulphate of copper when you get the violet color characteristic of the biuret reaction, which responds only with albumose and peptone. You see the beautiful violet color in the upper part.

I have seen only one other case beside this, one Dr. Fitz saw in consultation. There have been only eight or ten cases of true albumosuria reported in literature.

One writer has considered it to be due to malignant disease of some of the bones of the trunk, ribs in one instance, and some of the older cases where it has been reported were considered to be cases of osteomalacia. In the case Dr. Fitz saw he made the diagnosis of myxedema. I think one of the causes of the so-called rarity of albumosuria is that it is not detected. Indeed, I myself am almost always satisfied in obtaining a test like that with nitric acid without the heat test. This is a case where there is some obscure spinal disease. I understand there has been no definite diagnosis made. Dr. Swain informs me the most prominent symptom is paralysis of the legs, which has reached such an extent that the patient is confined to the bed. There is also enlargement of the liver and a history of probable syphilis. He has chronic nephritis with large hyaline granular and some few waxy casts. The condition of the kidneys may possibly be amyloid infiltration.

DR. C. L. SCUDDER: There are two mooted points still in the treatment of fractures of the lower end of the humerus either involving the elbow-joint or outside the elbow-joint, namely, in what position shall the arm be placed during the reparative process, and how early shall passive motion be instituted after healing has taken place? Those who advocate the completely extended position do so because they believe the carrying angle is of very great importance and should be preserved. They depend upon early passive motion for the obtaining of a serviceable joint. Those who advise the position of a right angle, which is the common position hereabouts, do so because it is feared that anchylosis will result, and if it does occur this is the most serviceable position in which the arm can be held.

It occurred to Dr. H. L. Smith, at one time connected with the City Hospital, that possibly there might be some active means of bringing the fragments into coaptation by the acutely flexed position, and in order to determine that fact he made some experiments upon the cadaver by chiselling off the condyles, causing T-fractures to be formed and fractures of the condyles into the joints. He discovered that when the elbow is in the extended position the fragments are loose and crepitus is easily obtained; that when the arm is at a right angle the fragments are a little less loose than in the extended position; that when the arm is forcibly flexed the fragments are held snugly together and pushed against the diaphysis and that the immobilization of the fragments is complete. He followed that experimental work by clinical experiments and published his reports three years ago of 10 or more cases. For the past two years I have treated in the outpatient department 26 cases of fracture of the lower end of the humerus which have involved in most instances the elbow-joint in the acutely flexed position. I will show three or four cases. When the patients appeared they were etherized in all instances, that a careful examination might be made, the arm was immediately and completely flexed. The results here have been unusually good, complete extension is maintained and flexion is practically normal. These cases demonstrate the preservation of flexion. These cases have been left untouched for from five to seven weeks, and at the end of that time the adhesive plaster has been taken off. This has been renewed at times, but no attempt at passive motion made; the plaster was taken off at the end of five to seven weeks and the arm passively and actively moved very gently at first and after three or four days the arm placed in a sling and then gradually motion allowed beyond a right angle. The results clinically bear out Dr. Smith's experimental work. The fragments are put in position better, and are immobilized in the flexed position so that on the cadaver and living subject under ether the position is an actively reducing and immobilizing one, and clinically the results are certainly satisfactory. The reason for this coaptation of fragments seemed to Dr. Smith to be that the posterior ligament of the joint and the coronoid process bind the fragments together at the lower end, and that the flexed position renders tense the fascia of the upper arm and the triceps fascia and the posterior ligament. There was no disturbance of the circulation of the forearm or hand in any of these cases. One case I did not put in the completely flexed position at first, but waited till some of the swelling had gone down. In no case was I obliged to give up flexion. Dr. Smith was obliged to give up flexion in one case. All my cases but one were in young persons, that is, under fifteen or twenty years of age. The acutely flexed position is the position *par excellence* for the treatment of uncomplicated fractures of the lower end of the humerus.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 16, p. 393.)

SARCOMA UPON LUPUS SCAR TISSUE.

TAUFFER[4] reports the case of a man of twenty-eight, whose mother and two sisters had died of tuberculosis of the lungs, and who had been affected with an extensive lupus of the face and neck since his twelfth year. There were also patches of lupus on his extremities. About five years previously a tumor had appeared on the left cheek which had been removed, but had recurred twice. When seen he presented near the left corner of the mouth a prominent tumor of the size of a hazel nut, covered with whitish-yellow crusts and scales, pretty hard in consistency and sharply bounded. It was considered clinically to be a carcinoma. The development of the lupus was so extensive that there was no question of operating upon the whole of the disease, so intervention was confined to removing the tumor. The histological report was a beginning epithelioma, but there was no evidence of lupus tissue. This operation was most successful, but within a year recurrent nodules appeared just beyond the area of the tumor which had been covered by a plastic operation. The new growth was as hard as cartilage, sensitive to the touch and bled easily. This tumor was excised and its histological character forms the basis of the paper. There could be no doubt that the previous tumors were epithelial, and in this case the clinical diagnosis was naturally epithelioma, inasmuch as in all previous cases of malignant growth secondary to lupus this form had been found. Some authors have divided them into lupus-carcinoma and lupus-scar carcinoma, but since it has been shown by the action of tuberculin and by the histological appearances that lupus scar tissue retains its lupous character and is not

[4] Virchow's Archiv, 1898.

like ordinary scar tissue this distinction cannot be regarded as of much importance.

It was found histologically that the substance of the tumor consisted of very numerous spindle cells, very rich in protoplasm, with one or several large, ovoid, elongated nuclei. Some of the bundles of cells were made up of giant cells, fibroblasts, which here and there showed peripheral nuclei, like true tubercle giant cells. No stroma or intercellular substance could be made out, but there were greatly dilated intercellular spaces in some places. There were abundant mast cells in the tumor and in the peripheral intercellular spaces. The elastic fibres were wanting in the papillary layer, while deeper down in the corium were seen remains of the elastic fibre network in the form of large packets rolled together.

There could be no doubt that in this case there was a connective-tissue neoplasm which had absolutely no relation to the epithelium. The writer accords with the view of von Langenbeck, which was that the appearance of carcinoma on lupus territory has the same significance as the much more common appearance of carcinoma on scars which have resulted from deep-seated burns of the face, and like lupus scars have become the seat of a continuous inflammatory irritation. This chronic inflammatory condition of a scar is further suggested histologically by the presence of masses of plasma cells which are developed only in subacute and chronic inflammations in the connective tissue. The case reported shows that this chronic inflammatory condition of scar tissue may play a part also in the etiology of sarcoma as well as carcinoma.

THE EXANTHEMATA OF TUBERCULOSIS.

Under this heading Boeck[1] includes those cutaneous eruptions which, although the tubercle bacillus has not been found in connection with them, are so frequently found on individuals who sooner or later are shown to be infected with tuberculosis, that we are justified, indeed forced, to regard them as connected with the tuberculosis. It is probable that we here have to do with the action of the toxins produced by the bacillus. In this class he does not include the known forms of cutaneous tuberculosis as exemplified by lupus vulgaris, tuberculosis verrucosa cutis, tuberculosis cutis miliaris and scrofuloderma.

Among the tuberculous exanthemata he includes:

(1) *Lupus erythematosus disseminatus.* The first clinical description of this form was probably published by Hutchinson. In 1880 Boeck published two cases, and the microscopic examination of one of them induced him to describe them as a peculiar form of lupus erythematosus disseminatus of Kaposi. A further point of resemblance in one of them was the occurrence of an erysipelas perstans, such as had been noted by Kaposi. This condition was also somewhat indicated in the other case. The primary lesion consisted of an erythematous spot or papule which frequently arose from a deeper seated nodule. The erythematous macule or papule often showed a small vesicular-like formation in the centre. At this stage the efflorescence would either undergo involution, or else a small necrotic suppurating focus would form in the centre. The result of the latter evolution was a small, sharply-defined scar. These small white scars, in some instances no larger than a pin's head, in others considerably larger, lent a characteristic appearance to the affection. In one case the scars were so deep that the edges of the ear presented a serrated, jagged appearance. The favorite seats of the eruption were the ulnar side of the forearms, and the wrists, hands and ears, although it could affect any portion of the body. The efflorescences were sometimes grouped and in this way offered a resemblance to lupus erythematosus. Both of these patients, men between twenty and thirty, had shown since childhood signs of tuberculosis in the glandular system and in the eyes. Histologically long rows of cells were found along the vessels, and especially about the hair follicles and sweat glands.

Since these cases were published Boeck has observed a great many others, and has always attached them to tuberculosis. The affection has since been described by others under the names "Folliculites disséminées à tendances cicatricielles" (Brocq), "Folliclis" (Barthélemy), "Hydradenitis destruens suppurativa," etc. Boeck then reports many of his later cases, showing the association of this form with tuberculosis, and in one case with lichen scrofulosorum, and the similarity that it often has to lupus erythematosus.

(2) *Lichen scrofulosorum Hebra.* This form certainly belongs in the class of tuberculous exanthemata. In spite of the local reaction about the lichen papules that has been observed by Neisser and Jadassohn after the injection of tuberculin, and in spite of the presence of giant cells in the infiltration, this form cannot be considered a true tuberculosis of the skin. In only one case has a bacillus been found (a single one), and all experimental inoculations on animals have been negative. One case has been reported where an extensive eruption of grouped lichen papules, precisely similar to lichen scrofulosorum, appeared in a tuberculous subject after tuberculin had been injected.

(3) *Eczema scrofulosorum.* Under this heading Boeck describes a form of eczema that occurs especially in older children or in young adults, and that is allied to lichen scrofulosorum, appearing often in individuals who have at some time been affected by the latter form of eruption. It takes the form of more or less infiltrated reddish spots, that are often simply scaly, but may be oozing and covered with crusts. Circinate and gyrate figures are often formed. They are often accompanied by small papules about the hairs, that resemble the lesions of lichen scrofulosorum. The favorite seats of the eruption are the thorax, the extensor surface of the upper arms and the extensor surface of the lower extremities. The scalp is often affected also, where the appearances are those of a pityriasis capitis, or an impetiginous eczema which is readily healed. This form of eczema is usually symmetrical in its distribution, and often recurs.

(4) *Lupus erythematosus discoides.* Boeck, who sides with those who regard lupus erythematosus as dependent upon tuberculosis, has endeavored to explain its relationship by the action of the toxins of the tubercle bacillus upon certain nerve centres of the skin, especially the vasomotor-trophic centres. He produces the statistics of 36 patients affected with the discoid form of lupus erythematosus, and asserts that two-thirds of these showed signs of tuberculosis. Another argument in favor of the dependence of the discoid form of lupus erythematosus upon tuberculosis is that this form may be combined and mingled clinically with the disseminated form. He considers that age and sex play a part in determining which of the different varieties of tuberculous exanthem is pro-

[1] Archiv. f. Derm. u. Syph., 1888.

duced. Eczema scrofulosorum appears chiefly in children, and lichen scrofulosorum in children and young adults. After this comes his disseminated form of lupus erythematosus (folliclis), which appears somewhat later in life, while the discoid form is found at a still later epoch. Occasionally, and as a rarity, the latter form may appear in children. As regards sex, all forms of lupus erythematosus are much more frequent in women than in men. Lichen scrofulosorum and perhaps eczema scrofulosorum are, on the contrary, more often seen in boys and young men. If we accept the proposition that a relationship exists between tuberculosis and the eruptions that we have been considering, we need not assume that this is a direct one. It may be supposed that the tuberculosis is only a predisposing agent which prepares the soil for another infection, although this seems unnecessary in the presence of an existing tuberculosis. In conclusion Boeck mentions several other affections which may have some claim to be included among the tuberculous exanthemata: lupus pernio, erythema induratum, gangrena cachectica infantum, acne cachecticorum, etc. These exanthemata are regarded as having much importance as forerunners of a tuberculosis that will later assert itself.

Reports of Societies.

ANNUAL MEETING AND DINNER OF THE BOSTON CITY HOSPITAL CLUB, FEBRUARY 2, 1898.

DR. GEO. W. GAY, PRESIDENT.

THE President, DR. GAY, gave the following address:

Fellow Members of the City Hospital Club and Invited Guests: — I take great pleasure in bidding you a hearty welcome to our annual festival, and only regret that a larger number of our more than two hundred members, and more than three hundred graduates, could not be with us upon this occasion, marked as these meetings always are, by good fellowship and pleasant associations. Another year with its hopes and aspirations, its disappointments and bereavements has come and gone

> "To join the days before it,
> And as for what to-morrow brings,
> The morning mists hang o'er it."

I sincerely hope that this anniversary finds every one of us wiser, better, stronger, yea, and richer, not only in this world's goods, but in everything that makes life worth having and living, than the last one did, and it is to be hoped that this growth and development may continue as long as life itself.

> "This world is to all a stiffish soil,
> And man flies back with a glad recoil
> From the debts not due till to-morrow."

It has been said that no one having a perfect memory and a sensitive conscience could exist for more than two years in this crowded, restless, wrangling age of ours. All of which leads me to call to your attention the importance of cultivating and encouraging such reunions as we are enjoying to-night. They are not only a recreation, but a positive benefit, in that they relax the tension of everyday routine, change and elevate the currents of thought, give all the finer feelings a freer play, and rejuvenate us for the work that is to come. No class of men by reason of the character of their occupation needs this relaxation more than the physician, and the more he gets the better will be his work. We require and are made better by the stimulus and encouragement that we get by coming together, shaking each others' hands, looking into each others' faces, and exchanging ideas with old friends and comrades, who have the same occupation, the same anxieties and the same objects in life as ourselves.

As the genial Autocrat has so wittily said:

> "Ye healers of men, for a moment decline
> Your feats in the rhubarb and ipecac line;
> While you shut up your turnpikes, your neighbors can go,
> The old roundabout road, to the regions below."

My plea this evening, my friends, is for a closer union between the hospital and the hospital graduates. I know that I voice the feelings of the entire staff in saying that a City Hospital graduate is always welcome to any department of the institution; that we are always glad to see him, and that he will be pretty sure to see or to hear something to his advantage during his visits; while he may occasionally meet a surgeon who has an amputation at the hip-joint upon his shoulders, or a couple of doubtful laparotomies in his breeches pockets, or a pestiferous bladder damned by a prostate in more senses than one, as our friend Dr. Watson can so well tell us in almost any language on earth, yet this man's heart is in the right place, and while he may be excused under the circumstances from exercising all the little amenities of life, yet he is nevertheless glad to see you. A man under this stress of circumstances may not be as communicative as you could wish, yet his house-officer will be, if you get on the right side of him. If you can't do that, then I am afraid you have neglected your opportunities in the past.

When the alterations and repairs now well advanced toward completion are finished, it is intended to so arrange the work upon the surgical side that there shall be public operations every Friday, and especial pains will be taken that the medical public, who may honor us with a call, shall not be disappointed. Furthermore it is intended to so regulate the surgical visits in the wards — for, gentlemen, there are occasionally cases in the wards worthy of one's attention, surgery not being entirely confined to laparotomies even in these days — to so arrange the surgical visits that at certain hours in the forenoon of every day, one may be pretty sure to find a surgeon upon his rounds, willing and glad to receive any one interested in the work.

But, gentlemen, please remember that there are other departments in the hospital than surgical that are ably officered by gentlemen who are always glad to receive visitors and friends; the medical, gynecological, contagious, as well as the various out-patient departments are all worthy of attention and study, and are open freely to City Hospital men.

I am taking up too much of your time, and will hasten to give way to abler speakers. In closing allow me to thank you for the honor of being allowed to serve as your president this year, and to hope that this club may continue to grow and to prosper in every good way for all time.

TOASTS.

THE PRESIDENT: The relations between the Trustees and the Staff of the City Hospital have always been extremely cordial and harmonious to the very great benefit of

the institution and of all concerned. As time goes on and the hospital increases in size and influence, these peculiar relations are more and more highly appreciated by the Staff, and their earnest efforts will continue to be made in the future, as in the past, to merit a continuance of that trust and confidence.

These occasions of the City Hospital Alumni would hardly be complete without the presence of one or more of the Trustees. I am happy to say that we have one of them present this evening, who has kindly promised to say a few words on the present condition of the hospital from his standpoint: Mr. L. G. Burnham.

MR. L. G. BURNHAM said in part:

The management of the City Hospital is divided into two parts, professional and business. Of the former I shall not undertake to speak to its graduates. It may interest you to hear something of the business side and what seems to be one of the important needs of the hospital at this time.

I refer to a Down-town Relief Station which should provide for the first treatment of the accident cases that occur in the vicinity of our steamship wharves and railroads. The Trustees are desirous of establishing one or more of these in various parts of the city, particularly where there are most likely to be accidents, so organized as to render prompt service.

As you are aware, there is a hospital already established in one of the locations that I have mentioned, and I do not wish to be understood as speaking of it in an offensive way, but to point out to you the advisability of having patients treated with the care and intelligence for which the Boston City Hospital is noted. It seems to me that your organization can engage in no more fitting work than to aid the Trustees by moral support and co-operation in the establishment of such stations.

There has recently been installed an electric lighting plant which is said to be one of the most complete connected with any institution in this vicinity. The steam which drives the engines and dynamos is afterwards used for heating the buildings, so that the actual cost for fuel for this purpose is reduced to a minimum. The engine-room, with its appliances, is well worth a visit from you when at the hospital.

The hospital has, for several years, owned a wharf on the Roxbury Canal which was formerly occupied by a coal dealer. There is now being constructed on it, and nearly finished, a coal pocket which will be one of the most complete of the kind in the country. By using one engineer it is arranged to hoist the coal from the vessel alongside of the wharf by means of a steam shovel, delivering it to a hopper which conveys it into a system of buckets hung by bails, much the same as water pails in line, and carried along a track. These are conveyed along to points in the coal pockets where it is desired to deposit the coal. The buckets also run through a tunnel under the piles of stored coal which feeds into them by gravity and conveys the coal to the engine-room, where each day's supply is dumped into a hopper weighing scale, much like a tunnel, in construction, which is used in filling bottles.

With the advantages of these appliances for purchasing and storing coal at wholesale rates, and the economy to be obtained by burning the pea and buckwheat sizes of anthracite in place of the furnace size as now, I am speaking well within bounds when I say, that the saving to the hospital on its present consumption will be something like five thousand to six thousand dollars per year.

Have any of you noticed the Ambulance Service recently? It has been vastly improved of late. The ambulances which were in use a few years ago weighed upwards of three-quarters of a ton, but recently the superintendent and carriage builders have succeeded in reducing this weight to a half a ton. The discipline is excellent. It is possible, and is frequently done, to harness out an ambulance and have it on the street within two minutes from the time the call is sent in. During the hours of the day when calls are expected a team is kept harnessed on the floor and can be put on the street as soon as the doors are opened.

While I cannot be one of the Alumni, I hope I may claim a feeling of comradeship with you in the noble work in which the City Hospital is engaged.

THE PRESIDENT: The Massachusetts General Hospital, venerable with age, clothed about with noble traditions, crowded with hallowed associations, a haven of help and comfort for nearly a century, the cradle of generations of students and physicians. Its history is an inspiration, and its existence a blessing to mankind. Its staff, past and present, composed of leaders in the profession, merits our respect and admiration, and is an honor to any community.

May the cordial relations at present existing between the Massachusetts General and the City Hospitals continue for all time!

The leading operating surgeon of New England, the friend and comrade of us all, needs no introduction to this club: Dr. M. H. Richardson.

DR. MAURICE H. RICHARDSON, in responding to the toast of the "Massachusetts General Hospital," said that he brought the cordial good wishes of the Staff of that hospital. The great work already accomplished in every department of the City Hospital has made it an institution in which we all take a professional as well as a civic pride, and none accord greater praise to the men who have achieved this work than those for whom he had the honor to speak.

It is desirable in a large community that institutions engaged in promoting similar objects should aid each other in every possible way. One prolific source of improvement is the stimulation to greater efforts and better work which an active and honorable rivalry brings forth. The example of the City Hospital has thus stimulated the Massachusetts General, and, no doubt, the City Hospital has felt from the Massachusetts General a similar impetus to good work. By this rivalry, which is a most friendly and generous one, not only both hospitals, but the community, have benefited.

It is to be hoped that these great hospitals will be more and more closely united in the promotion of the objects for which they were founded, and that to this end every means will be taken to strengthen the bond of intimacy and good fellowship now existing.

THE PRESIDENT: The largest city in the world is not represented here to-night, but the second largest is, in the person of an old friend of yours and mine, who lives there and is in touch with the leading men of the profession. I have invited him to tell us something about medical matters in Greater New York. I present Dr. John B. Walker.

DR. WALKER: *Mr. Toastmaster and Fellow Members of the Boston City Hospital Club.* — Rising from this table where I have been seated as your guest it is hardly possible for me to tell you the pleasure it is to be here and to meet so many of my old friends. I appreciate the honor, and thank you for the pleasure it affords me.

New Yorkers are always glad to return to Boston — the fount and source of their knowledge — to meet in their own city the wise men of the East and draw from them new ideas and inspirations. Ever since I left the old hospital I have remembered with ever-increasing pleasure my days of service there. I have been interested in watching its constant growth and development under the wise direction of our distinguished superintendent. Some men, intimate with hospital management in New York, say that Dr. Rowe, of Boston, has the broadest grasp of this subject, and that the Boston City Hospital is the best organized, disciplined and equipped hospital in the country. We have our large and independent surgical and medical wards; our contagious wards; a hospital by itself, unequalled; and no hospital has such grand special operating-rooms as ours. But pre-eminently above these spacious structures we look back with admiration and pride to the remarkable men who made all this material growth possible, to the men who infused into the institution their own life and attracted to it the interest necessary to nourish and sustain its growth; the names of Buckingham, Bowditch, Homans, Thorndike, Cheever and Gay flash before us, and we say, "It is to these men that we owe the education and inspiration that sent us forth fit to take a place in the ranks of the healers." It was Dr. Cheever who sped me on my way into the world. On leaving the hospital, I asked him where there was an opening and where he thought I ought to locate. He replied that he knew of no opening, that each man must make one for himself, and that he would succeed best if he located in that place where he desired most to live. And so after seeing much of many places I came by a process of natural selection to New York City.

When you first locate in New York there comes to you a very pleasant, agreeable man, the agent of the county medical society, and inquires carefully where you were graduated, whether you have been in practice, etc., and then suggests that it would be well for you to have your name on the medical register. You thank him for his kindness and he departs. When you apply to have your name put on the register you find that you must have a certificate from the Regents Board of Examiners of the University of the State of New York, and to obtain this you must pass an examination in the eight main subjects of medicine. There is no way to escape this ordeal, for the medical laws are rigid. At first it seems like an exclusive club, but, after you pass your examination, you decide it cannot be exclusive enough. When this law first went into effect, in 1891, a large number failed to pass the examinations and then went outside the State to practise, but gradually better-prepared men have come in and the law has proved most satisfactory.

Then comes the question: "Where in this great city shall I establish myself?" The answer depends, in a large measure, upon what line of work you are going to do. Some desire to go into general practice and seek an income at once. Such a man must locate in districts where the young married people abound, such districts as those west of Central Park above 72d Street, and east of the Park above 59th Street. Others, who wish to work up into a specialty, are willing to labor long in the outdoor departments of the hospitals, and to live on bread and butter, and keep themselves ready to go, at a moment's notice, anywhere to assist the eminent specialist in some operation. This assistant should establish himself in the central district (somewhere between 34th Street and 59th Street, between Madison Avenue and Sixth Avenue), where he can easily be reached; he should connect himself with one of the medical schools in a teaching capacity, where he may learn as he prepares to teach others. If you wish to learn about some special subject the best way is to write a paper on that subject for some society meeting. It will be criticised and your knowledge will be increased. You can do this there because of the several medical schools, the College of Physicians and Surgeons, Bellevue University, Polyclinic, Post-graduate and others.

A man can become acquainted with the older men, who have travelled along the same road years ago, by joining the Harvard Medical Society. This Society is made up of men who have been graduated from the Harvard Medical School and it numbers about fifty members, all of whom are always interested in each newcomer. He may further increase his acquaintance and influence by entering the Harvard Club, where he will surely meet friends among its thousand members. If one is obliged to support himself at once there are several ways open; he can try for a position as inspector on the Board of Health at $100 per month; he may secure a position on one of the outdoor departments which pay salaries to their staffs; there are several of these which pay fairly well. Again, one sometimes earns something by working for the medical journals, reporting meetings, etc. Others start quiz classes or assist in some of those already flourishing. It is reported that one of the brilliant surgeons makes nearly $10,000 a year from his most excellent quiz. It is one of the distinctive advantages of this great city that there are so many opportunities for the young physician to support himself.

Another great advantage is the wealth of material for study and research. A physician has a population of nearly five million to draw from; there are hospital accommodations of more than six thousand beds. Nearly every specialty may be studied in at least one special dispensary and several specialities have several clinics at their disposal; there are five for the eye and ear, four for obstetrics, four for throat and nose, three for cancer, three for orthopedics, two for contagious diseases, while general surgery and medicine have unlimited resources. It is this remarkable field for work that has in a large measure made possible the development of the men who have risen to be leaders of their profession.

I think I may say it is recognized that the most eminent in every business come to New York and it is as true in the medical profession as in all others. The opportunity of coming into contact with these leaders is of great value to the younger men; the young professional man in New York must realize that it is for the future stakes that he is working, that all true success is of slow growth and that sometimes haste in the beginning may destroy the chances of a future career. As Dr. Osler says, one must take care to thoroughly educate himself, and reputation will come of itself. These men achieved their success only by long years of diligent, laborious work; and what has been true in their cases will be true for others.

The Boston City Hospital Club has several representatives who are acquitting themselves with marked distinction and they are always ready to welcome the

next acquisition to their ranks. In conclusion, I am sure I voice the sentiment of all present in heartily wishing for the continued success and prosperity of the Boston City Hospital Club.

The President: "I suppose I must go and earn that d——d guinea," said John Hunter, on being summoned to wait upon Lord So-and-so, while engaged in making some interesting experiments. Too many physicians, even in these days, get so absorbed in their work that they neglect the business side of their profession to the detriment of themselves and of their families. They earn guineas enough, but they do not collect them, or they do not take care of them judiciously when they are collected.

We have with us this evening a gentleman who is a good friend to the physician, and a still better one to his patients, as is shown by the fact that he has built a fine hospital and presented it to the city in which he lives. He has solved the riddle of how to get and to take care of the guineas, and I am going to ask him to say a few words to us from the standpoint of a successful business man: Hon. William B. Rice, of Quincy.

Hon. W. B. Rice: *Mr. President and Gentlemen of City Hospital Club* — If my friend, Burnham, who is engaged with you in your glorious work, felt some trepidation when rising to address you, how shall I, who have nothing but business to talk about, have courage to occupy any of your time? In the presence of men of your profession, one who has given most of his life to chasing that will-o'-the-wisp, the "damned guinea," referred to by your President in his kindly introduction, must hold only second place at best. I count it a great honor, therefore, to be invited to say a word on the business side of your profession.

Now, I am asked to tell you in ten minutes how to so manage your affairs that at the end of a long life of service, which I wish for you, you can look back and say, "On the whole, I have been a success; I have accumulated a competency; I have enjoyed the regard of my fellows; I have wronged no man." This presumes that, on the average, you are not naturally of a business turn of mind; that your instincts have prompted you to take up a work which does not attract because of financial rewards to be won, but because something tells you that here you can round out your life and reach the highest service to your fellowmen.

If there are any among you whose principal object in joining the ranks was to make money, they have probably thought out their plans carefully and do not wish any advice from me. Such will be attracted to the commercial side of the profession and will, perhaps, advertise some Life Elixir or other patent medicine or take out a patent on a method of breathing through the elbows — they will be sure to find some way of adding to their store faster and easier than to walk patiently and reverently in the path so well beaten out by those who have won honor and renown in your profession. Therefore, I do not talk to them.

I address the young man who has entered the profession because he loves it — because no other work will satisfy. He is determined to win a place among those whose object is to prevent the inception and spread of disease — to stay its advance, and stop suffering, and save human life, after it has gained a foothold. Such men are apt to be careless about business matters and unless they have been taught in their youth, either by precept or example, they suffer all through life by such carelessness.

A young doctor of this sort is pretty sure to have something to do. At school and college and in the hospital he has already made his mark by his zeal, his modesty and his devotion to his work; the older doctors recommend him to such patients as they cannot attend; not the most profitable practice, perhaps, but "all is fish that comes to the net" of the beginner, and he takes up the work with courage and fidelity.

Now is the time to establish correct business habits of a lifetime. If a patient is poor, worse off even than yourself, of course, you will govern your charge accordingly. The traditions of your profession have taught you that. But have a settlement. Let it be thoroughly understood whether or not you are to receive any pay, what it is to be and when it is to be paid. Then charge it carefully and collect it promptly.

From those who are able, of course, you are to have your pay. Don't hesitate to believe that your bill should be paid just as much as the grocer's, and that you cannot pay your grocer until you collect your own bills. Cowardice in this regard is fatal at the very start.

Many a man goes through life harassed by his finances, just because he has not courage to claim his own. To be sure, there are people who do not intend to pay their doctor's bills until there is something left over after paying for the gratification of every other want; but such would not pay any bill, if they could avoid it. Experience has taught them that doctors can be more easily imposed upon than any other class, unless it be the washerwoman. I do not think science has yet figured out which profession should take the prize in this respect.

You will, at the beginning, then, know what you are to receive, and you will make sure to collect it at the proper time. This done, with good health and good courage, you are reasonably sure of an income sufficient for your comfort.

Now you are getting on. Correct business methods are producing their inevitable result; you are getting ahead financially. What shall you do with the surplus? It is only a little, to be sure, but the principle of action that you adopt now in your investments will determine whether or not your growing savings shall prove a comfort and a blessing to yourself and family, strengthening you in your profession and in the opinion of your fellow-men and bringing peace and rest in your declining years, or whether your life is to be one long chaos of excitement and worry over the daily stock reports, or this or that speculation, weakening you in your professional work, and in the regard of your fellows and bringing unrest and disaster in your declining years.

(*To be continued.*)

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

Regular Meeting, Monday, May 2, 1898, Dr. W. H. Baker in the chair.

Dr. J. B. Blake read a paper on

TRAUMATIC VENTRAL HERNIA.[1]

Dr. Knapp: One of the cases which Dr. Blake has spoken of I saw. I do not recall from my memory of

[1] See page 409 of the Journal.

the case whether when the case was first operated on there was a definite lesion of the muscles found.

DR. BLAKE: No; there was no lesion found.

DR. KNAPP: I remember that there was not. When I saw it afterward this protrusion above the scar was a very curious thing and distinctly puzzling. It seemed to me the only interpretation which I could give of it was some injury of some of the intercostal nerve fibres causing partial paresis of the muscle and a yielding of the muscle. The voluntary contractions seemed to be distinctly weaker than those of the other side, and the slight changes in the electrical reactions seemed to corroborate that belief, that there had been a traumatic neuritis affecting some of the branches only which supplied the abdominal muscle. Such a condition seemed to me at the time to be a most curious and rare thing. I can recall only one case in my experience of at all a similar character where there was a neuralgia limited to the ilio-inguinal nerve of one side following a blow upon the back. But certainly the isolated lesions of these smaller nerves in the back and abdomen are, so far as my experience goes and so far as anything I have encountered in the literature, exceedingly rare. The case impressed me as being one of unusual interest, and I am very glad Dr. Blake has put it upon record.

DR. BLAKE: I have been unable to find any case at all like the second one to which Dr. Knapp referred. The cases of rupture of the muscle without external wound are rare enough, but cases of apparent rupture due to nerve lesions, as far as I can find, have not been reported.

DR. E. W. TAYLOR read a paper on

TUMORS OF THE FRONTAL LOBES.[2]

DR. KNAPP: I think it is a little unfortunate to use the expression "tumors of the frontal lobes" in this connection, because the frontal lobe, anatomically, extends to the fissure of Rolando. The tumors which are of especial interest in this connection are the tumors of the prefrontal region, tumors which do not extend back as far as the precentral sulcus. Tumors extending as far as the ascending frontal and the ends of the third frontal convolutions immediately adjacent to the precentral sulcus naturally come under the head of tumors of the central region with definite and well-characterized focal symptoms, so that it seems to me that we should speak especially of tumors of the prefrontal region rather than of the frontal lobe, which might include anything as far back as the fissure of Rolando.

Dr. Taylor's case is instructive and interesting. I think the moral of it is that definite epileptic attacks — it seems to me the description of a part of the attacks which this patient had were epileptic rather than hysterical — in a man over thirty with no syphilitic history should awaken in our minds the suspicion of some grave cerebral disorder and should exclude uncomplicated neurasthenia. The determination of the true nature of these attacks, however, is sometimes a very difficult matter.

I recall a case which I saw a number of years ago which proved to be an infiltrating glioma in the central region in a Polish Jew. I was called to see him originally with some vague and untrustworthy history of attacks of loss of consciousness and with a complaint of very frequent attacks which he described in vague terms as affecting his right toes and right foot. He would come into my office or I would see him at his house and he would tell me he was then suffering from an attack. The most careful examination at the time would give no indication whatever of any movements of the toes, of any blunting of the sensibility, of any disturbance of consciousness, of any dilatation of the pupils, of any change in color or even scarcely any change in the pulse, nothing whatever that could be seen which could be regarded as an attack, yet the man would persistently complain of these attacks, and his complaint and that condition lasted several months. Later on he complained more frequently of the attacks, and slight twitchings of the toes could be perceived. There was finally a beginning paresis of the right foot. He dragged the foot more or less in walking, and after a period of two or three years he developed headaches and hemiplegia and at the very end of his life optic neuritis.

I think another deduction to be drawn from Dr. Taylor's case is not to depend upon one examination of the eye in cases of suspected tumor. I have followed up several cases where almost until the last week or two of life there had been no discoverable changes in the eye, but finally in the last week distinct neuritis had developed.

Within a few months Tambroni and Obici have reported a case not unlike Dr. Taylor's in one respect, in that the initial symptoms — it was a case of tumor of the frontal lobe — were almost wholly neuralgic, although that was associated with headache as well, with grave neurasthenia followed by gradually increasing physical weakness and some increased impressionability, finally more or less progressive mental failure with definite and distinctive symptoms of brain tumor.

This whole question of tumors of the prefrontal region is a most profoundly interesting one, especially since the recent speculative theories of Flechsig. Dr. Starr, I think, stands very nearly alone in claiming that the psychical disturbances are of great localizing value, and on the strength of a very happy diagnosis he has published a case which he thinks is the first one where operative interference was guided by the localizing symptom of the early mental failure. Dr. Starr's theory has interested me somewhat, because several years before Dr. Starr's paper appeared I published a case of tumor in the prefrontal region where the focal diagnosis had been definitely made, aided in part, I admit, by the presence of the psychical failure, and where the question of operative procedure had been raised. I saw the case in consultation with the late Dr. Doe, and was asked to see it with especial reference to the possibility of operating. The focal diagnosis was made and under other circumstances I should have advised operating excepting that the woman had a dilated and exceedingly weak heart, and of course any operative procedure would have been promptly fatal.

In the great majority of cases of brain tumor, however, I believe that there is some lowering of the previous mental standard of the patient, but I do not think that the prefrontal region is by any means the exclusive seat of the psychical process. I have certainly seen very marked dementia in a case of tumor of the corpus callosum. I have seen marked and progressive dementia simulating general paralysis and leading to that diagnosis in a case of tumor of the temporal lobe, but, nevertheless, in spite of the some-

[2] See page 405 of the Journal.

what visionary basis of the hypothesis of Flechsig, I think there is possibly some reason to believe with him that the prefrontal region has an influence upon some of the ideas of personality and has something to do with the higher intellectual processes.

Dr. Taylor has spoken somewhat slightingly perhaps of the experimental research upon animals. I think the recent investigation of Bianchi upon the brains of monkeys and dogs is of a careful character and is of a certain value, when associated with the clinical observations upon men, in upholding the claim which Bianchi has brought forward, that the removal of both frontal lobes does tend to a certain disaggregation of personality, as he calls it. The theories of Munk and Luciani, that the back muscles are represented in the prefrontal regions, lack support, more especially from the fact that the representation of the trunk and dorsal muscles has been found by Horsley, Beevor and other English observers to be upon the mesial aspect of the brain. Williamson in an analysis of 50 cases of lesions of the prefrontal lobes, 46 of which were tumor, and four abscess, pointed out that a unilateral or predominantly unilateral disturbance of vision or of the optic nerve and unilateral affections of smell were of some value. I believe Dr. Taylor did not mention anything in regard to this patient's sense of smell.

DR. TAYLOR: I am afraid that was not examined.

DR. KNAPP: The stiffness of the muscles of the neck of which Dr. Taylor speaks I have seen in only one case, which is now under my observation, where for a time there was a suspicion of meningitis and for two or three days a marked stiffness of the muscles of the neck. The evident proof that there was no meningitis is that the case is still alive and getting on very comfortably. The diagnosis cannot be confirmed, but in all probability it is a tubercular growth in the prefrontal region of the left side.

Another factor of very distinct importance which Dr. Taylor has not spoken of at all is the so-called invasion symptoms as the tumor increases in size and grows backwards toward the precentral sulcus, the appearance of either Jacksonian epilepsy or of paresis of the various centres invaded and in tumors of the left prefrontal the beginning of any aphasic disturbances. From these invasion symptoms we may certainly suspect a tumor in the prefrontal region before the focal symptoms appear, but the invasion symptoms seem to me to afford very distinct corroboration of our earlier suspicions.

I think, therefore, while we cannot make a diagnosis of tumors of the prefrontal lobe from the presence of intellectual disturbance, nevertheless that such tumors are very apt to be accompanied by intellectual disturbance, and it also seems to me that we should study these cases with more care, to determine just what form of intellectual disturbance may be present, to see if in any way the hypothesis of Flechsig may be borne out in regard to the intellectual centre there, whether it is more especially a disturbance of personality or whether it be intellectual disturbance of some other sort. The reported cases, many of them, are exceedingly vague upon this point.

DR. THOMAS: I am very glad Dr. Knapp spoke of the invasion symptoms in tumors. I think usually there has not been enough attention paid to them. One point in addition to that, which really belongs in the same class of symptoms, is that while the convulsions may be general, in case of tumor of the brain where they are excited by indirect pressure upon certain centres, yet the point at which the convulsion starts, and the order in which it spreads is, as a rule, unlike that in indiopathic convulsions, although this may not be so in every convulsion. If we find the successive involvement of different portions of the body in the order of the anatomical arrangement of motor areas in the brain we have an important symptom pointing to organic disease of the brain, rather than to so-called idiopathic epilepsy.

DR. NICHOLS: Some years ago I had a patient whose only symptom was a persistent severe pain in the frontal region. The man was ill about two years, under my care the last two or three months, and no diagnosis was made from the fact that there was no pathognomonic sign. The character, severity and circumscribed area of the pain suggested specific pachymeningitis, although no history of specific trouble could be obtained. At the autopsy a gliomatous tumor was found about the size of a hen's egg of which there had been no previous suspicion. Its location was in the central frontal region. These cases serve to illustrate, I think, that in many lesions usually accompanied by very pronounced and distinct pathognomonic signs there may at times be no characteristic symptoms whatever. Other instances of analogous exceptions might be cited, as a case of acute peritonitis without any pain whatsoever, running a fatal course and demonstrated by an autopsy, although our ordinary conception of peritonitis is a lesion attended with the severest pain. Likewise with regard to strangulated inguinal hernia. I have attended a fatal case occurring in a very stout woman where not only no hernia could be found prior to the autopsy but no tumor of any character, nor any circumscribed focal pain. In Dr. Taylor's case he speaks of the convulsive movements as being observed with accuracy. He means, as I infer, comparative accuracy by one of the laity. I cannot help thinking, however, that if these attacks had been seen by a competent physician perhaps something more characteristic would have been elicited in respect to the convulsive movements or some of the attending symptoms, which would have pointed perhaps more definitely to the character of the lesion.

DR. COURTNEY: I was fortunate enough to be present at the autopsy in this case and it seemed to me that the absence of invasion symptoms on the part of the motor apparatus was in all probability due to the direction in which this tumor had its main growth, namely, toward the mesial aspect of the brain rather than backward. It seems to me, further, that we are totally unjustified in saying that any brain tumor runs its entire course without symptoms. In the reported cases there is an obvious lack not only of historical data, but also of thorough physical exploration, including examination of the eye-grounds. As such cases come principally from the asylums and occur among persons who are the victims of some marked psychosis, I am inclined to think that physical signs which would at once attract the attention of a neurologist entirely escape the observation of the alienist. I should like to ask Dr. Knapp how often he has observed the condition of "Witzelsucht" in tumors of the prefrontal region?

DR. KNAPP replied that he did not remember ever to have observed it.

DR. TAYLOR: In regard to the experimental

method, I did not mean to cast any aspersions upon it. It is one of our main sources of information. In this particular regard I have no doubt Dr. Knapp and I should agree, that it may be possible to carry it too far. In general it seems to me the tendency has been to draw rather too broad conclusions from purely animal experimentation.

In regard to the invasion symptoms, of course the interesting thing about this particular tumor was that there were no invasion symptoms.

In regard to the observation of the convulsions, these convulsions were observed by a medical student, a brother of the patient, in his third year. They are marvellously well observed. He made for example the observation I have described of the character of the convulsions, and the relation of the disturbance of consciousness to the convulsive movements. It is almost word for word what Oppenheim has described as characteristic. It was purely a matter of observation on his part and not knowledge.

What I should draw chief attention to is the deceptive character of these innumerable so-called neurasthenic symptoms. The whole attitude of the man was that of a neurasthenic. I naturally did not mean to say that the epileptiform convulsions were neurasthenic. The general grouping of the symptoms in the case seemed so interesting and its final localization so important as to make the case worth reporting at considerable length.

AMERICAN NEUROLOGICAL ASSOCIATION.

(Concluded from No. 16, p. 396.)

TWENTY-FOURTH Annual Meeting held at the New York Academy of Medicine, May 26, 27 and 28, 1898.

LOCOMOTOR ATAXIA WITH HEPATIC CRISES.

DR. WM. C. KRAUSS, of Buffalo, reported a case of locomotor ataxia in a woman aged forty-three years, who for ten years had periodic paroxysmal attacks of jaundice with intense hepatalgia, which the writer designated "hepatic crises." The patient had the lancinating pains in her limbs, with myosis, Argyll-Robertson pupil, loss of tendon reflexes, marked ataxic gait and inco-ordination. Every four or five weeks she had attacks of deep jaundice with excruciating pain over the lixer, clay-colored stools and presence of bile pigment in the urine. These attacks would last two to three days, then disappear for a month. The hepatic area was not enlarged. No gall-stones were found in the feces. No rise of temperature and the patient died in one of these attacks.

The autopsy revealed the characteristic changes of locomotor ataxia in the spinal cord and spinal ganglia. The liver weighed three and one-quarter pounds and showed no new growth of any kind. The gall-bladder was filled with bile but no gall-stones were found. The ductus choledochus and accessory ducts were unobstructed. The microscopical examination showed an early stage of chronic congestion of the liver.

DR. OSLER thought that the pain and jaundice accompanying the attacks would lead one to suspect the presence of gall-stones.

Dr. KRAUSS replied that the feces were examined almost every day, but no traces of gall-stones were ever found.

THE NOSOLOGY OF THE SO-CALLED FUNCTIONAL DISEASES.

This was the title of a paper by DRS. JOSEPH COLLINS and JOSEPH FRAENKEL, of New York.

The authors endeavored to prove that the various so-called functional nervous disorders were primarily conditioned through the sympathetic system, and were the result of a trophic change.

DR. DERCUM said he did not think we had a scintilla of evidence that the sympathetic system played the extensive rôle assigned to it by the readers of the paper.

D. IRA VAN GIESON considered the sympathetic as that part of the nervous system which covers the whole question of food supply. He thought that the authors had attempted to show that in certain diseases, there are changes in the higher spheres of the nervous system produced by lesions of the sympathetic, either functional or organic, which have deprived those higher centres of their food supply.

DR. MILLS thought the authors of the paper had made the mistake so often made of attributing to a certain portion of the nervous system diseases which largely manifest themselves through such portion. They had done little more than to assert that certain diseases are traceable to the sympathetic nervous system. To a certain extent, the paper was a step backward. We have quite as much evidence in favor of designating hysteria a cerebral or psychic disease as a disease of the sympathetic nervous system. He felt that the authors had failed to clear up the mystery which surrounds our knowledge of the diseases of this system of nerves.

DR. SACHS said we are not in entire ignorance of the functions of the sympathetic nervous system. We know that certain pupillary and visceral symptoms, as well as certain vasomotor and trophic symptoms, have their origin there. He did not think the writers of the paper would be able to prove that such symptoms occurred more frequently in hysteria or neurasthenia or acromegaly than they do in diseases which we positively know are of cerebro-spinal origin.

DR. OSLER regarded the paper as a retrograde step to again bring forward this old defunct theory, still, he said, it only goes to show that we think the same thoughts that our fathers thought.

DR. J. J. PUTNAM said that while he did not regard the sympathetic system as an essential factor in the causation of disease, he did regard it as a very important factor in the maintenance of certain diseased conditions.

DR. COLLINS, in closing the discussion, said he did not wish to maintain that any of the diseases he had mentioned were diseases of the sympathetic system. He only maintained that they were nutritional diseases, and that the sympathetic nervous system controls nutrition from beginning to end.

FAMILY PERIODIC PARALYSIS.

This was the title of a paper by DR. E. W. TAYLOR, of Boston.

The condition consists of periodic attacks at varying intervals of a complete flaccid paralysis of the muscles of the body and extremities. Associated with this paralysis is a temporary quantitative diminution to complete loss of electrical excitability of muscles and nerves; also a loss of the reflexes.

During such an attack consciousness and sensation are unaffected. The patient's condition between attacks is normal. The condition is clearly a family disease. The cases reported by Taylor occurred in a family in which for five generations there have been eleven cases. The two persons studied were brother and sister, both of whom suffer from attacks of the above type.

The brother, chiefly studied, presents a perfectly typical variety of the affection. Etiology is lacking excepting that the attacks come on preferably after exercise, followed by rest. Pathological anatomy is as yet vague.

DR. SINKLER said he wished to place on record a case that came under his observation. The patient was a man with facial paralysis who gave a history of five previous attacks in the course of ten years. Each of the attacks lasted several weeks and ended in complete recovery.

DR. DANA had seen a number of cases of periodic paralysis, none, however, of the family type. He had come to the conclusion that while some of them were cases of recurrent poliomyelitis, the majority were purely hysterical in character. The family type of this disorder was certainly rare, and perhaps a little light might be thrown upon the subject by studying allied conditions. He had seen a number of patients who had informed him that when first waking up in the morning they were unable to move for half an hour or even longer, suffering from paralysis and a certain amount of numbness. The ordinary types of morning paralysis seem to be the result of some toxic condition, associated with an asthenic condition of the nervous system.

DR. COLLINS said he had observed three cases of periodic paralysis, none, however, of the family type.

THE SURGERY AND PATHOLOGY OF THE GASSERIAN GANGLION.

This was a joint contribution by DRS. W. W. KEEN and W. G. SPILLER, of Philadelphia.

DR. KEEN has operated on the ganglion in eleven cases. He believes that the removal of the ganglion is almost invariably attended with the relief of pain; that it is hardly practicable to attempt to preserve the motor root; that it is better to remove the whole rather than only a part of the ganglion; and that, as the removal of the ganglion is always a serious undertaking, it is best to do a peripheral operation first, unless the pain is widespread and involves all three branches of the nerve. He thinks that peripheral operations should be done when the disease has existed for three or four months, and has not been cured by drugs. The microscopical examination by Dr. Spiller of seven ganglia removed by Dr. Keen showed intense alteration of the ganglia, involving axis cylinders, myelin sheaths, blood-vessels and the connective tissue. In one case in which the entire ganglion with its motor and sensory roots was removed, these roots were found to be normal, although the second and third branches of the nerve near the ganglion were greatly degenerated. The writers believe that trifacial neuralgia is primarily due to disease of the peripheral branches of the nerve and that the ganglion is probably secondarily involved. In a case in which only the supraorbital and infraorbital nerves were removed, these nerves were found much degenerated.

DR. MILLS was inclined to the opinion that tic douloureux in the typical form in which we commonly see it was a degenerative process of the peripheral sensory neuron. He did not regard it as neuritis, in the ordinary sense of the term.

DR. DANA agreed with Dr. Spiller as to the pathology of this condition. He believed that the specimens and investigations confirmed the views of Dr. Putnam and himself, that in most of these cases we have to deal with a degeneration of the nerve. Tic douloureux is a disease not only of the nerve but of the whole individual. In quite a number it is a self-limited disease. He was opposed, as a rule, to surgical interference.

DR. VAN GIESON had found in these cases an obliterative endarteritis of the vessels accompanying the nerves and a proliferation of the nerve-cells.

DR. KEEN, in closing, said the question was purely a clinical one. He did not agree with Dr. Dana regarding the unsatisfactory results of operative interference in these cases; his own experience had convinced him to the contrary.

DR. SPILLER concluded that this disease was usually a peripheral one. If the lesion was primarily in the ganglion, it was difficult to understand why the peripheral branch of the nerve was so highly diseased while the central branch was normal.

THIRD DAY. — SATURDAY.

HUNTINGTON'S CHOREA.

DR. FRANK K. HALLOCK, of Cromwell, read a paper on this subject, and presented the report of a case which showed clearly the course and order of development of the degenerative process, the dementia and chorea paralleling each other as the degeneration progressed. The conclusions reached were: (1) That it is a progressive degenerative disease of the brain, fundamentally different from ordinary or Sydenham's chorea. (2) That the chief physical manifestations of the disease are the choreiform movements which are of secondary importance, merely indicating the nature of the cerebral lesion. (3) That the character of the mental symptoms can best be described by the term dementia. (4) If the above assertions can be verified, then the disorder should be classed with such diseases as dementia paralytica and dementia senilis.

LOCALIZATION OF THE SYMPATHETIC NERVE IN THE BRAIN AND SPINAL CORD.

This was the title of a paper read by DR. B. ONUF, of New York. It consisted of a report of experimental researches with contributions to the physiology of the sympathetic.

Discussion by Drs. Spiller, Booth, Langdon and Collins.

LONG REMISSIONS IN EPILEPSY AND THEIR BEARING ON PROGNOSIS.

This was the title of a paper by DR. WHARTON SINKLER, of Philadelphia.

The writer recorded twenty-four cases of idiopathic epilepsy in which there had been remissions of the attacks of periods varying from two to twenty-nine years. In none of these cases was trephining done. In a few of these cases the freedom from attacks was attributable to the long-continued use of remedies, but in the majority of cases as soon as the attacks were arrested, all medication was stopped, and therefore the relief from the seizures could not be ascribed to treatment.

In his opinion the conclusion to be drawn from a study of the twenty-four cases presented is, that epi-

lepsy should be regarded as an incurable disease. It is encouraging, however, to find from the long intervals which have occurred in these cases that the disease is amenable to treatment, and that a sufferer from epilepsy may look forward to the probability of long remissions in which he is as competent to fill his place in the world as if he had never had the disease.

REGENERATION OF NERVE FIBRES IN THE CENTRAL NERVOUS SYSTEM.

This was a paper by DR. W. L. WORCESTER, of Danvers.

In an old case of necrosis of the right corpora quadrigemina he found in the degenerated portion several bundles of contorted fibres, entirely dissimilar to any normal structure in this region, and resembling an amputation neuroma. They seemed to originate from the tegmentum above the red nucleus. He believed them to be an outgrowth of newly-formed fibres from neurons that had been interrupted by the lesion.

THE NEUROLOGICAL ASPECT OF PUBLIC SCHOOL EDUCATION.

This was the title of a paper by DR. JOHN PUNTON, of Kansas City.

He believed that serious defects still exist in the routine methods of public school education and training of the young which is attested by not only the general public but also the teachers and officers of the schools themselves.

What is necessary to be done, nay, even demanded of us, is to fix certain definite standards of weights and measurements for every age and height and any pupil found to be above or below this standard should be treated accordingly. In almost every city of the world anthropometrical investigations have now been made and the unanimous verdict has been reached that the mental output of the pupils is directly related to their height, weight and physical measurements and that there is a physical basis for precocity on the one hand and mental dulness on the other.

The following officers were elected for the ensuing year: President, Dr. J. Hendrie Lloyd, of Philadelphia; Vice-Presidents, Dr. Frank R. Fry, of St. Louis, Dr. Henry Hun, of Albany; Secretary and Treasurer, Dr. G. M. Hammond, of New York; Councillors, Dr. F. X. Dercum, of Philadelphia, Dr. G. L. Walton, of Boston.

THE NEW YORK STATE MEDICAL ASSOCIATION.

FIFTEENTH ANNUAL MEETING, OCTOBER 18-20, 1898.

THE Fifteenth Annual Meeting of the New York State Medical Association was held at the Mott Memorial Hall, New York, on October 18th, 19th and 20th, Dr. Douglas Ayres, of Fort Plain, Montgomery County, presiding. In the course of a paper on "State Examinations of Milk for Tuberculosis," Dr. F. O. Donohue, of Onondaga County, said: "It is not contended that if every tuberculous cow was slaughtered the disease would be eradicated, but this does not change the general principle that so potent a scourge should be dealt with and strenuous efforts put forth to annihilate the disease in dairy cattle. Examinations made in certain sections of the State revealed so extensive a prevalence of tuberculosis among cattle as to create a very material alarm in the minds of dairy farmers. It is doubtless owing to this hostility in a large measure that appropriations were withheld by the present administration for the continuance of the work. The law is still in force and the commissioners are drawing their salaries, but for the past two years the work has been at a standstill. It must and will be taken up again, for civilization will demand that the product of the dairy shall be free from the germs of a lingering infectious disease, the most destructive that afflicts humanity."

A number of delegates from the medical societies of neighboring States were received, and several of them presented papers. The Connecticut Medical Society sent a communication asking the co-operation of the Association in a protest against proposed anti-vivisection legislation. The protest, which was approved, declared: "It is the glory of the medical science of the century that the average of human life has been increased by more than ten years, and we assert that this has been brought about in a very great measure by the study of physiological and biological processes as exemplified in and investigated by experiments upon animals. We regard these experiments to be as completely justified as is the employment of animal food to sustain life."

Dr. F. H. Wiggin read the report of the Committee on the Abuse of Medical Charities which had been appointed to represent the Association in the efforts made by various medical societies in New York, Kings, Queens, and Richmond Counties to correct hospital and dispensary abuses. It detailed the steps taken to put all such institutions under the control of the State Board of Charities, and the final failure in the Assembly of the bill agreed upon. The committee was discharged and a new one appointed, with Dr. Wickes Washburn, chairman. Two or three papers on this subject were read, one of them being by Dr. Washburn. In it he strongly advocated the bill mentioned and in concluding said: "This bill would, I believe, relieve the tax-payers in reducing pauperism, and in the end would, I hope, help to a recognition of what I believe to be a fact that mendicancy is a disease and requires treatment as such. This cannot be done except by co-operation, nor co-operation be had without legislation."

Ever since the organization of the Association it has been the custom to select the president every alternate year from the members of the Fifth District Branch, which embraces the southeastern section of the State, and, on account of the large cities included within its territory, is much larger than any of the others. This year Dr. Joseph D. Bryant, of New York, was elected President, and Drs. James G. Hunt, of Utica, Douglas C. Moriarta, of Saratoga Springs, Frank D. Reese, of Cortland, and William M. Bemus, of Jamestown, Vice-presidents; Dr. E. D. Ferguson, of Troy, was re-elected Treasurer. The Association dinner was held at the Manhattan Hotel on the evening of October 19th. Dr. Ferguson acted as toastmaster, and among the speakers were Dr. W. B. Atkinson, of Philadelphia, Secretary of the American Medical Association, W. Guy Carleton, Esq., Dr. E. E. Holt, of Portland, Me., and Dr. W. Murray Weldman, of Reading, Penn. The most noteworthy feature of the meeting was an elaborate discussion on Intestinal Obstruction, extending over a considerable portion of the second and third days' proceedings, a report of which will be published in the JOURNAL.

Recent Literature.

An American Text-Book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin. Edited by L. Bolton Bangs, M.D., and W. A. Hardaway, A.M., M.D. Illustrated with 300 engravings and 20 full-page colored plates. Philadelphia: W. B. Saunders. 1898. Pp. 1229.

It is a distinctly American habit to unite the somewhat incongruous specialities of genito-urinary diseases and diseases of the skin in the practice of one man. So many specialists have grown up practising in both of these two distinctly separate fields that it is no wonder that now and then books have appeared which have tried to embrace the range of practice thus somewhat loosely and, as it were, accidentally combined. While it is plain that syphilis is the connecting bond between these two branches of practice, combining as it does local genital lesions with general skin manifestations, it does not afford a sufficient excuse for continuing this, as it were, Siamese union. Seriously, the time would seem to have arrived when, in order that each one of these subjects should be adequately considered, it should be separated from the other and treated as a wholly distinct specialty.

In the present volume the attempt to get this wide range of subjects compressed between two covers has necessitated the somewhat superficial treatment of some matters, but, upon the whole, the condensation has been well done. The book is one, however, to serve as a guide for students and beginners rather than as a reference book for advanced students of the subject who seek the elucidation of abstruse points.

The chapter on the Ureter is perhaps the most interesting in the genito-urinary portion of the book. This is a subject in which much recent advance has been made, and the various surgical and experimental investigations by which our knowledge has been pushed forward are clearly and adequately set forth.

The chapter on Diseases of the Prostate is an interesting one. In the consideration of prostatic hypertrophy considerable special pleading in favor of the operation of castration is indulged in. No attempt is made to draw any conclusions as to the method of operation suitable to different forms of enlargement, and yet in a given case the careful study of the direction that the hypertrophy has taken is most important in determining the method of relief. Alexander's operation through the perineum aided by suprapubic incision, which has rendered such good service in his hands, is not mentioned.

The chapters on Syphilis and Skin Diseases are for the most part well-written and compact statements of our knowledge on these subjects. The illustrations of various skin lesions will assist beginners in getting a clearer impression of the conditions than could be obtained from any verbal description alone.

The book is necessarily large and somewhat unwieldy, but this is its misfortune and not its fault. It can be safely recommended to students, who will get much assistance from it.

Prof. A. Jacobi, M.D., LL.D. — At the recent commencement of Ann Arbor University, Ann Arbor, Mich., the degree of LL.D. was conferred on Prof. Abram Jacobi, of New York.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 27, 1898.

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VIRCHOW'S HUXLEY LECTURE.

A perusal of Virchow's Huxley lecture, delivered at the opening of the Charing Cross Hospital Medical School, seems to suggest that the inspiration to be derived from great men of science who have passed beyond their productive period, comes from their personality and from their earlier association with great forward movements and the struggles incidental thereto rather than from what they may say on special occasions. This distinguished pathologist has in his life spanned the developmental period of modern medical science, and even if he had not taken such a prominent part in its evolution, the very fact of his long period of activity and his venerable age graced with such versatile powers should be sufficient to arouse the enthusiasm of a student body.

A history of the progress of medicine, while it may be of surpassing interest to one who has long marched at the head of the column and has now stepped aside to let the procession pass before him, does not afford that pleasure to those still in the ranks and pushing actively forward. Hence we may pass by what he says concerning cellular pathology. The principles reviewed by him which relate to the cell as the visible unit of life, which make the individual a kind of "social mechanism" composed of these units, and which assert the origin of all cells from pre-existing cells, are so deeply imbedded in all text-books of the present time that the student is probably not aware that fundamentally different views were once dominant. The emphasis which Virchow lays upon the absence of any essential differences between human and animal life and upon pathology as only a branch of biology is in full accord with his whole life-work as well as with the practice of to-day which tends more and more to the exploiting of animal life as a storehouse of therapeutic forces and as a means of explaining physiological and pathological processes.

It is a fortunate disposition of our day to give much weight or at least a wide publicity to the occasional

deliverances of great men upon problems which are working changes at the present time and which are likely to cast their light or their shadow far into the future. We are therefore more than eager to listen to Virchow's informal statements upon the medical problem of the present and future — parasitism. It has not been his lot to share actively in the triumphs which have been gained during the past twenty years in this special domain. Nor have his pupils made any noteworthy contributions, probably owing to the necessity for a division of labor which resulted in the establishment of special bacteriological and hygienic institutes. His position has been that of a wholesome, not infrequently adverse critic, and in the present address the critical tone prevails. While giving credit to etiological studies, he does not seem to realize that the discoveries in bacteriology are destined to revolutionize pathology as much as did his doctrine of cellular pathology in the past. These discoveries have converted what was little more than a descriptive study into one dealing with forces and endeavoring to harness those forces in the interest of prophylaxis and therapeutics. He quite overstates the tendency to, and the results of, generalizations concerning the bacterial origin of infectious diseases. The blame for much vague generalization must be laid at the door of medical publicists who are not themselves investigators, and of practitioners who have overlooked the reservations of the experimenter and have moulded the facts to their own views and needs. Nor has the number of false "discoveries" been so large as Virchow would have us believe, when we take into consideration the great activity in this field and the multiplying opportunities for prompt and often irresponsible publication. His treatment of antitoxins is dismissed with one unintelligible statement: "The homeopathic notion that toxin and antitoxin are one and the same seems so foreign to our biological ideas that very many experimental and practical proofs will be required before it can be admitted into the creed of the future." This homeopathic notion is held by a very few and is discredited by all exact information we possess. It is evident that there is a strong affinity of toxin and antitoxin for one another, but this affinity suggests opposite rather than like. In his own special field of tumors Virchow says nothing that would lead us to believe that he regarded tumor formation as a function of parasites. Nor does he favor the universal application of the more dominant theory that tumors arise from tissue elements which through some agency find themselves in abnormal situations.

Aside from certain minor defects, incidental to Virchow's critical attitude, his statement upon the subject of parasitism deserves the attention of all who are either endeavoring to enrich our knowledge on this subject or to use its doctrines and theories in dealing with disease. Specially commendable is his statement that to produce an infectious disease not only the bacteria or protozoa are necessary, but also a certain behavior of the organs and tissues of the host. It is this behavior, which, figuring under the terms immunity and predisposition, forms the most difficult and most urgent biological problem of the future.

CHRISTIAN SCIENCE AND DEATH.

THE very recent death of Harold Frederic, the clever novelist and widely-known London correspondent of the *New York Times*, from heart disease, for which he had, until a few days before his death, received "absent treatment" from a certain Mrs. Mills, a Christian Scientist, has attracted very general attention.

It is reported that at the inquest, which was adjourned till Wednesday, October 26th, Mr. Frederic's daughter Ruth said her father did not believe in doctors. She added that it was with his consent, but under the influence of others, that Mrs. Mills, a Christian Scientist, was summoned to attend.

Kate Lyon, a member of the Frederic household, testified that the deceased had asked her to call in Mrs. Mills, and the latter came to the house and expounded the system followed by the Christian Scientists. On the following day Mr. Frederic dismissed the doctors who had been in attendance on him.

Most of Mrs. Mills's treatment, continued the witness, was what was known as "absent treatment." At the request of friends of the sick man, the doctors were again summoned, but the patient informed them that when they had previously been attending him he had not followed their directions.

During this same month of October, the death of another gentleman of considerable education and social position, Major Cecil Lester, Instructor at the Sandhurst Royal Military College, occurred in England whilst under the "absent" and present treatment of another female Christian Scientist, a Mrs. Grant; this case has also attracted much attention, and is the subject of an editorial in the *Lancet* of October 15th, under the title of unchristian nescience.

From the medical science point of view, the two cases exhibit important differences; from the Christian Science point of view they were alike fit for the practice of absent treatment by persons who knew nothing whatever of the diseases from which the patients suffered, and who evidently considered this a detail of no consequence.

In each case there was an inquest which verified the diagnosis and justified the treatment and prognosis of the medical men originally summoned to the patients.

Frederic was a self-educated, self-made man, with some of the contempt for, or impatience with, the conservative experience of the past which that class of man is apt to entertain. He was of fine physique, and died, at the age of forty-two, from cardiac and other complications supervening upon a previous attack of acute rheumatism. The post-mortem examination established the fact that with what medical science would call proper treatment, he would now be alive

with an excellent chance for ultimate recovery of good health.

Major Lester suffered from tuberculous peritonitis. His physicians told the family there was little, if any, hope of his recovery, but that much might be done to alleviate his discomforts. Upon this Mrs. Grant was telegraphed to, and she commenced her treatment at once, before seeing the patient, "by what she should call taking up the right thought of the omnipotence and love of God."

In Frederic's case, it was largely the patient himself who insisted upon Christian Science, and secretly neglected other treatment when originally provided. In Major Lester's case it was the friends who, learning the verdict of the physicians, cherished the "rational and reasonable hope" that there might be something in the Christian Science treatment which would lead to recovery. At the inquest on this latter case, the jury added to their verdict riders expressing their entire satisfaction with the treatment and act on of the physicians, and "their sense of abhorrence at the so-called treatment of the deceased by Mrs. Grant, as representing the Christian Scientist Society, in not using material means for the alleviation of his suffering."

The contemplation of this sufferer's death-bed leads the *Lancet* "to pass briefly in review the reasons given by the exponent of the Christian Science treatment for the hope that is in Christian Science treatment — an excellent and taking phrase, but surely a misnomer from beginning to end. Mrs. Grant told the jury that she gave no material remedy to alleviate the pain. Where was the treatment? Mrs. Grant told the jury that she had no experience in the treatment of peritonitis; yet she commenced her treatment directly she got the telegram and before she had seen the patient. Where was the science? Mrs. Grant, 'taking up the right thought of the omnipotence and love of God,' told the jury that she did not believe that suffering was sent by God, and she contended that Jesus Christ never sent the sick to physicians. If the agony at Calvary for man's redemption was a God-sent reality, and if the Miraculous Healer told the Pharisees that 'they that be whole need not a physician, but they that are sick,' where is the Christianity of the Christian Scientist?

"Though sufficiently vital to demand notice we have no desire here to labor this aspect of the question. We feel it rather to be our duty, our solemn duty, to warn Christian Scientists of the grave responsibility which they incur in regard to the health and lives of their fellow-beings. We must point out that their methods of so-called treatment are ignorant devices, spurious in themselves and altogether unscientific and opposed to common-sense. The Christian Scientist talks as if his (merely human) activities were set in motion and pervaded by an atmosphere of divine potentialities. In an almost flattering way he, as it were, 'stands in' with God, or, as Coroner Roumieu bluntly put it at the inquest, he 'tries to usurp the special power which Christ had.' We feel it, further, to be our duty to point out that apart from evils which may result to individual members of the community from it, the Christian Science treatment is neither more nor less than a *fin-de-siècle* fad, a drawing-room cult, and that it is the counterpart of the culpable negligence which has brought the peculiar people of the less educated classes within the range and operation of the criminal law of the country."

MEDICAL NOTES.

Sunstroke in October. — A death from sunstroke occurred in the first week of this month in Akron, Ohio.

The Grieg Smith Memorial. — The Grieg Smith Memorial, the new operating theatre at the Bristol (England) Royal Infirmary, was formally opened September 30th, by Sir William MacCormac, president of the Royal College of Surgeons.

The Medical Department of the University of California. — The new building of the Medical Department of the University of California, at the corner of First and Parnassus Avenues, south of Golden Gate Park, San Francisco, was opened on Saturday, October 22d, with appropriate exercises.

Precautions against the Importation of Leprosy from Hawaii. — The California State Board of Health has appointed Dr. C. A. Ruggles, president of the board, to visit the Hawaiian Islands, to learn the extent of the presence of leprosy and report measures to prevent its introduction into California.

Courtesy and Anti-vivisection. — According to the *Lancet*, during the course of the complimentary dinner that the medical profession of Great Britain and Ireland tendered Professor Virchow on the occasion of his recent visit to England, an anonymous telegram was handed to the illustrious guest, containing the following words: "Get thee hence, vile vivisector! England spurns thee!"

The Filth of Havana. — Dr. W. F. Brunner, sanitary inspector of the Marine-Hospital Service, has made his first report from Havana since the war began. He says that the city is even more filthy than it was before, if such a thing can be imagined. There is not a great deal of yellow fever, simply because there is but little material for the disease to feed upon, but pernicious malaria, dysentery and typhoid fever are prevalent. The deaths for the week ending October 6th were five hundred and thirty-six, which is larger than for any single week during the past year. There are still some reconcentrados, whose deaths from starvation help to swell the roll of mortality.

The Condition of the Returned Spanish Soldiers. — The suffering on the part of the sick and wounded Spanish soldiers is reported to be so great that an English committee of ladies headed by

the Countess de Casa Valencia, wife of the ex-ambassador to the Court of St. James, are receiving subscriptions in London in behalf of the unfortunate men and transmitting the money, as well as lint, bandages and other surgical appliances, to Spain. The committee has recently received a letter from the Duke of Sotomayor, majordomo to the Queen Regent, expressing her thanks to the committee for their efforts and her intention to personally distribute the fund among the sick and wounded soldiers.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, October 26, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 34, scarlet fever 33, measles 29, typhoid fever 24.

THE NEW BATH HOUSE OF THE CITY OF BOSTON. — The members of the medical profession were invited by the Mayor of Boston and the Bath Commission to visit on last Saturday the new Dover Street bath house which has just been opened by the city.

YALE MEDICAL SCHOOL. — The vacancy caused by the retirement of Professor Lusk, head of the physiological department at the Yale Medical School, has been filled by the appointment of Prof. B. Moore, formerly instructor of physiology in the University College Hospital, London.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society, at No. 19 Boylston Place, on Thursday, November 10, 1898, at 2 P. M. Candidates will make personal application to the Secretary and present their medical diploma, or its equivalent, at least three days before the examination. For further particulars apply from 2 to 3 P. M. to John Dane, M.D., Secretary, No. 29 Marlborough Street, Boston.

SURGEON-GENERAL STERNBERG BEFORE THE VERMONT SANITARY ASSOCIATION. — On October 25th, Surgeon-General Sternberg addressed the Vermont State Sanitary Association, at its third annual meeting at Montpelier, Vt., on "Modern Health Regulations." He included in his address the subject of the causes of typhoid infection in camps, and spoke in favor of the bill now before the Vermont legislature for the establishment of a State Bacteriological Laboratory.

NEW YORK.

DEATH AT THE AGE OF ONE HUNDRED AND ONE. — The Rev. Charles Heath, colored, died in New York on October 18th at the age of one hundred and one years. He was born a slave in Dinwiddie County, Virginia, on September 17, 1798.

THE WORK OF ST. LUKE'S HOSPITAL. — The Society of St. Luke's Hospital held its annual meeting in the hospital building on October 17th. The report of the president showed that during the year 2,656 patients were treated, of whom 721 were patients paying full rates, 146 paying in part, and 1,787 non-paying. In the out-patient department 3,741 patients were treated and 18,117 visits made. It was stated that 70 per cent. of the work of the institution was wholly charitable.

Miscellany.

YELLOW FEVER IN THE SOUTH.

THE following are the reports on yellow fever in the South, received by the Marine-Hospital Service for the week ending October 22, 1898:

			Cases.	Deaths.
Louisiana:	Alexandria,	To Oct. 15, (estimated)	200	2
	Amite City,	" " "	1	1
	Baton Rouge,	" " "	17	4
	" " East,	Oct. 17, yellow fever reported.		
	" " West,	" " " " "		
	Bowie,	" 6,	1	
	Cinclare,	To Oct. 15,	11	1
	Delogny,	Oct. 1,	1	
	Feliciana, East,	" 17, yellow fever reported.		
	Feliciana, West,	" " " " "		
	Franklin,	To Oct. 6,	375	7
	"	Oct. 7-13,	168	1
	"	" 14,	13	1
	"	" 15,	10	
	"	" 16,	22	
	"	" 17,	7	
	"	" 18,	1	
	"	" 19,	5	
	Harvey's Canal,	To Oct. 6,	41	3
	Houma,	" " 15,	40	2
	Iberville,	Oct. 17, yellow fever reported.		
	Jackson,	To Oct. 15,	15	0
	Jefferson Parish,	To Sept. 20,	5	0
	Lake Charles,	To Oct. 15,	1	1
	Lobdell,	Oct. 12, yellow fever reported.		
	Lutcher,	To Oct. 15,	14	2
	New Orleans,	" " "	74	19
	Plaquemine,	" " "	6	1
	St. Charles Parish,	Oct. 17, yellow fever reported.		
	St. James Parish,	" 1,	1	
	Wilson,	To Oct. 15,	303	7
Mississippi:	Bay St. Louis,	Oct. 11,	9	
	Canton,	" 10,	4	
	"	" 17,	1	
	"	" 19,	2	
	Clinton,	To Oct. 15,	40	
	Crystal Spring,	Oct. 11,	5	
	" "	" 19,	1	
	Edwards vicinity,	To Oct. 6,	6	
	"	Oct. 7,	13	1
	" "	" 16,	5	
	Fayette,	" 6-13,	5	
	Harriston,	To Oct. 6,	42	4
	"	Oct. 7,	66	1
	"	" 14,	6	
	"	" 16,	2	
	"	" 17,	3	
	"	" 18,	2	
	"	" 19,	2	1
	Hattiesburg,	" 8,	18	
	"	" 14,	3	1
	"	" 15,	4	
	"	" 17,	4	1
	"	" 18,	2	1
	Hormanville,	To Oct. 13,	3	
	Jackson,	To Oct. 6,	41	4
	"	Oct. 7,	61	1
	"	" 14,	10	
	"	" 15,	7	
	"	" 16,	8	
	"	" 17,	16	
	"	" 18,	4	1
	"	" 19,	6	
	Madison,	" 6,	45	
	"	" 17,	1	1
	"	" 18,	2	
	"	" 19,	5	
	Meridian,	" 15,	1	
	"	" 17,	2	
	Natchez,	" 7-13,	8	
	"	" 14,	4	
	"	" 15,	3	
	"	" 16,	3	
	"	" 17,	2	
	"	" 18,	3	
	"	" 19,	2	
	Orwood,	To Oct. 6,	79	4
	"	Oct. 7-13,	6	1
	"	" 14,	9	
	"	" 15,	4	

Mississippi: Oxford,	To Oct.	10,	670	36
"	Oct.	11-13,	13	2
"	"	14,	1	
"	"	15,	2	
"	"	16,	1	1
"	"	17,		
"	"	18,	4	
Poplarville,	"	9-13,	9	
"	"	16,	7	
"	"	17,	7	1
"	"	18,	1	
Port Gibson,	"	6,	1	1
Queen Hill,	"	15,	1	1
Ridgeland,	"	9-13,	5	
"	"	15,	1	
"	"	17,	1	
Starkville,	"	6-13,	6	
"	"	18,	1	
Taylor,	To Oct.	6,	100	11
"	Oct.	7-13,	4	2
"	"	15,	1	
Tougaloo,	"	16,	1	
"	"	17,	1	
Waterford,	To Oct.	6,	2	
Waterview,	" "	6,	10	
Waveland,	" "	10-13,	16	1
"	Oct.	14,	2	
"	"	16,	0	
"	"	17,	1	
"	"	18,	1	
Woodville,	To Oct.	6,	1	
Yazoo City,	Oct.	16,	6	
"	"	17,	5	
"	"	18,	4	
"	"	19,	2	1

The decided falling off since the frosts of last week is of interest.

PLAGUE IN VIENNA.

THE death of a servant in Professor Nothnagel's laboratory in Vienna, from plague, probably contracted from the carcasses of animals which had died of plague inoculation, and of Dr. Mueller who attended him, together with the report that two nurses, another laboratory assistant, and the wife of Barisch, the assistant who died, have contracted the disease, has created considerable excitement in Vienna.

The popular fear of a plague epidemic is so great that, according to despatches to the daily press, "extraordinary precautions have now been taken to prevent an epidemic. The plague patients lie in an isolated building, attended by Dr. Pooch, a volunteer physician, and by Sisters of Charity. They are surrounded by a rope, across which nobody is allowed to pass. Dr. Pooch writes the prescriptions and fastens them to the window-pane. The doctors outside read them and have them made up. Then the prescriptions are placed on the window ledge, from whence they are removed by those inside. Food is conveyed to the patients and their attendants by Sisters of Charity in a similar manner, and the nurses furnish accounts by telephone of all changes in the patients' condition.

"Every person who has come in contact with Herr Barisch, principally the hospital attendants, has been isolated. Some of them resisted and others tried to escape, but were captured, and all were locked up. It is feared, however, say the reporters, that the precautions were taken too late. Barisch was ill three days before he saw a doctor, during which time he lived with his wife and visited wine shops. The wife, who has now developed suspicious symptoms, visited friends, rode in public omnibuses and came in contact with dozens of persons at her husband's funeral.

"A temporary hospital, consisting of several detached sheds, has been hastily erected behind the infectious hospital. One hundred men worked by torchlight there in order to complete it as quickly as possible.

"The anti-Semitic newspapers are accusing the Jewish doctors of bringing the plague to Vienna. It is feared that this appeal to the worst passions of the mob will lead to plague riots against the Jews if the disease spreads."

The popular fear of the spread of plague, however, is undoubtedly unjustified, as it ought to be easy for the health authorities, by the rigid isolation of suspects, to keep it fully under control. An unfortunate aspect of the occurrence is the fact that it will probably be exploited by the opponents of laboratory investigations and other methods of progress in medical science, as an argument that the cultivation of pathogenic organisms is dangerous to the communities in which bacteriological laboratories are situated.

In reply it may be said that this is probably the only known instance in which a contagious disease has been propagated from a case contracted in a laboratory in which pathogenic organisms were cultivated, that it will certainly be shown to be due to carelessness on the part of the servant, and that the disease will undoubtedly be rapidly brought under control.

The occurrence emphasizes the need for the most thorough precautions and safeguards in institutions where infectious bacteria are cultivated and studied, not only on the part of the principals, who now practise them, but also on the part of servants with whom familiarity is as apt to breed careless contempt, as ignorance is to breed superstition among the uninitiated.

THE INTRACEREBRAL INJECTION OF TETANUS ANTITOXIN.

THE daring procedure first successfully practised by Quenu and Chauffard, as noted in the JOURNAL of July 14th, has been performed for the first time in this country, and the eighth on record, by Dr. Rambaud, of the New York Pasteur Institute, in the case of a patient in Passaic, N. J., who developed tetanus after a lacerated wound of the calf of the leg due to falling through a skylight. A large portion of the calf of one leg was torn completely away. "Antitoxic serum was injected hypodermatically but without effect. As a final effort it was decided to resort to the heroic measure of trephining the skull on both sides and injecting the antitoxin directly into the anterior lobes of the brain tissue. This was accordingly done, with the result that almost immediately there was a relaxation of the muscles of the jaw. Since then improvement has been steady and constant." Dr. Rambaud was present at the first successful operation performed by Quenu and Chauffard, in which Roux injected the antitoxin. The period of incubation of the disease is not stated. It is to be hoped that a fuller report of the case, which is one of great interest and importance, will be forthcoming.

Du Hamel (*Méd. Moderne*, August 10, 1898) also reports a case of tetanus occurring in a boy aged fifteen and produced by a pistol-shot wound between the thumb and index finger. Later symptoms of tetanus developed and he was taken to the Pasteur Institute, where, in addition to hypodermic injections of antitetanic serum three cubic centimetres of a similar fluid was injected in each side of the brain near the fissure of Rolando. At the time the injections were made the patient was in a condition of strong opisthotonos. The contractions gradually diminished though they did not entirely disappear for some days. In three weeks he was out of the house.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWENTY-ONE DAYS ENDING OCTOBER 20, 1898.

MURRAY, R. D., surgeon. To proceed to Meridian, Miss., for special temporary duty. October 5, 1898.

MEAD, F. W., surgeon. Granted leave of absence for two days. October 4, 1898.

BANKS, C. E., surgeon. Granted five days' extension of sick leave. October 1, 1898. To assume temporary command of Service at Vineyard Haven, Mass. October 5, 1898.

GLENNAN, A. H., surgeon. To proceed to Atlanta, Ga., for special temporary duty. October 10, 1898. To visit Montgomery, Ala., *en route* to Atlanta, Ga. October 11, 1898.

BROOKS, S. D., surgeon. Granted leave of absence for four days. October 4, 1898.

OAKLEY, J. H., passed assistant surgeon. To proceed to Birmingham, Ala., for special temporary duty. October 13, 1898.

COFER, L. E., assistant surgeon. Granted leave of absence for twenty days. October 10, 1898.

THOMAS, A. R., assistant surgeon. To report at Bureau for special instructions. October 14, 1898.

TABB, S. R., assistant surgeon. Assigned to duty as sanitary inspector on U. S. Transport "Manitoba." October 4, 1898.

MCMULLEN, JOHN, assistant surgeon. Assigned to duty as sanitary inspector on U. S. Transport "Mississippi." October 5, 1898.

RUSSELL, H. C., assistant surgeon. To rejoin station at Chicago, Ill. October 5, 1898

PARKER, H. B., assistant surgeon. To report to medical officer in command of Service at Stapleton, N. Y., for duty. October 19, 1898.

FOSTER, M. H., assistant surgeon. Granted leave of absence for thirty days on account of sickness. October 1, 1898.

ANDERSON, J. F., assistant surgeon. Granted leave of absence for thirty days on account of sickness. October 4, 1898.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.— The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, November 2, 1898, at 8.15 o'clock.

Business: The election of a chairman for the Section for the ensuing two years.

Papers: "The Treatment of Cerebral Tumors," by Dr. P. C. Knapp. Drs. Putnam, Bradford, M. H. Richardson and Walton have been invited to discuss this paper.

"A Case of Cerebral Sarcoma of Great Extent; Extirpation; Marked Amelioration of Symptoms; Recurrence and Death at the End of Six Months. Remarks on the Advantages of Palliative Operations in Cerebral Tumors," by Drs. J. J. Putnam and M. H. Richardson.

Presentation of Pathological specimens, instruments, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

RECENT DEATHS.

EDMUND WALSH, M.D., M.M.S.S., of East Cambridge, died October 19, 1898.

DR. DAVIDE TOSCANI, professor of legal medicine in the University of Rome, died after a long illness at Rome, September 15, 1898. About twenty-five years ago he established the Municipal Office of Hygiene at Rome and was its director for twenty years. The great improvement which has taken place in the sanitary condition of that city during this time is largely due to his work.

J. RICHMOND BARSS, M.D., M.M.S.S., a prominent physician of Malden, Mass., died at Hanover, October 25th. He was born in the Bermudas, forty-nine years ago, and was educated in Halifax. Completing his college education there, he entered Harvard Medical School, where he received his degree. He practised for some twelve years in Melrose, after which he removed to Malden, where he had been for the past sixteen years. He had been senior surgeon at the Malden Hospital since that institution opened, was at one time president of the Malden Medical Society and was a member of the Massachusetts Medical Society.

A. P. SNOW, M.D., of Winthrop, Me., died October 25th. He was born in Brunswick, March 14, 1826. He was a private pupil of the late Prof. E. R. Peaslee, of New York, studying in the Medical School of Maine and the Dartmouth Medical School, graduating from the former in 1854. He was demonstrator of anatomy in both schools. He commenced the practice of medicine in Winthrop in 1854. He was an active member of the Maine Medical Association and its president in 1873. In 1869 he was chosen president of the Kennebec County Medical Association and he was also a member of the American Medical Association. In 1871 he was a member of the legislature. Eight years later he was appointed a trustee of the Maine Insane Hospital and he occupied other positions of responsibility and trust, both as a physician and as a citizen.

BOOKS AND PAMPHLETS RECEIVED.

Flies as Spreaders of Sickness in Camps. By M. A. Veeder, M.D., Lyons, N. Y. Reprint. 1898.

Tenth Report of the State Board of Health of the State of Maine for the Two Years ending December 31, 1897, 1896-97. Augusta: Kennebec Journal Print. 1898.

Endemic Leprosy in Louisiana, with a Logical Argument for the Contagiousness of this Disease. By Isadore Dyer, Ph.B. (Yale), M.D., New Orleans, La. Reprint. 1898.

Notes on Disinfectants and Disinfection. By A. G. Young, M.D., Secretary of the State Board of Health of Maine. Reprinted from the Tenth Report. Augusta. 1898.

On the Significance of Jaundice in Typhoid Fever and on the Hepatic Complications without Jaundice. By J. M. DaCosta, M.D., LL.D. (Harv.), Philadelphia. Reprint. 1898.

An Additional Case of Double Congenital Microphthalmos. What Should the General Practitioner Know about the Eye? By Cassius D. Wescott, M.D., Chicago. Reprints. 1898.

Orchitis or Epididymitis as a Complication or Sequel of Typhoid Fever. A Contribution to the Study of the Muscular Dystrophies. By Augustus A. Eshner, M.D., Philadelphia. Reprints. 1898.

A Contribution to the Study of Hip-Disease; On the Ultimate Results of the Mechanical and Operative Treatment. By Virgil P. Gibney, M.D., Jerome Hilton Waterman, M.D., and W. G. Reynolds, M.D., New York. Reprint. 1898.

The Hygiene of the Voice, with Twenty-seven Illustrations. By Thos. F. Rumbold, M.D., Member of the St. Louis Medical Society; Permanent Member of the American Medical Association, etc. St. Louis, Mo.: Witt Publishing Co. 1898.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Vol. XV. "Infectious Diseases." New York: William Wood & Co. 1898.

Manual of Skin Diseases, with Special Reference to Diagnosis and Treatment. By W. A. Hardaway, M.D., Professor of Diseases of the Skin in the Missouri Medical College, St. Louis. Second edition, entirely rewritten and much enlarged. Philadelphia and New York: Lea Bros. & Co. 1898.

The Treatment of Skin Cancers. By W. S. Gottheil, M.D., Professor of Dermatology at the New York School of Clinical Medicine; Dermatologist to the Lebanon Hospital, the North-Western and West-Side German Dispensaries, etc. New York: Published by International Journal of Surgery Co. 1898.

The Essentials of Histology, Descriptive and Practical, for the Use of Students. By E. A Schäfer, LL.D., F.R.S., Jodrell Professor of Physiology in University College, London; Editor of the Histological Portion of Quain's "Anatomy." New (fifth) edition. Philadelphia and New York: Lea Brothers & Co. 1898.

Diseases of Women; a Treatise on the Principles and Practice of Gynecology for Students and Practitioners. By E. C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's Hospital, Chicago, etc. Philadelphia and New York: Lea Brothers & Co. 1898.

Guide to the Clinical Examination and Treatment of Sick Children. By John Thomson, M.D., F.R.C.P. (Ed.), Extra Physician to the Royal Hospital for Sick Children, and Lecturer on the Diseases of Children in the School of Medicine of the Royal College, Edinburgh. Philadelphia and New York: Lea Brothers & Co. 1898.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George Frank Butler, Ph.G., M.D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Medical Department of the University of Illinois, etc. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

Hemorrhagic Glaucoma; Report of a Case, with Micro-Photographs. A Clinical Report on the Use of Argonin in Gonorrheal Ophthalmia. A Case of Tenonitis. Acute Inflammation of the Middle Ear. The Determining Cause of the Site of Ulcers on the Nasal Septum. By E. C. Ellett, M.D., Memphis, Tenn. Reprints. 1897-98.

A Clinical Treatise on Diseases of the Breast. By A. Marmaduke Shield, M.B. (Cantab.), F.R.C.S., Senior Assistant Surgeon and Lecturer on Practical Surgery to St. George's Hospital; Late As istant Surgeon, Aural Surgeon and Lecturer on Operative Surgery to Charing Cross Hospital, etc. London: Macmillan & Co. 1898.

Original Articles.

TROPICAL AND CAMP DISEASE: A STUDY OF SANTIAGO CASES AT THE BOSTON CITY HOSPITAL.

BY E. M. BUCKINGHAM, M.D.,
Visiting Physician.

It is still altogether too soon for any complete medical report of the cases of disease from Santiago. Still, as these cases have been scattered broadcast over the country, it seems proper for one who has had extended opportunities to publish his observations, although a longer time might modify any conclusions. It seems especially imperative since the type of disease is new to this part of the country.

Of over four hundred cases admitted to the hospital, about a third have passed through my hands. Probably all have malaria. In most cases this is sufficiently clear from the clinical history. In a large proportion, it has been demonstrated by the microscope. The remaining cases are so few, that as all have been alike exposed, it is fair to assume that more extended observation would have shown these, too, to be infected. This is the more probable because it is by no means unusual for a first and second blood examination to be negative, and for the clinical condition to be one of comparative health, with or without an enlarged spleen; and yet for the disease to be unmistakably demonstrated later, both clinically and microscopically. Any such cases should then be assumed to be malarial, whether it can be demonstrated or not. Whenever malaria has been detected microscopically it has been invariably of the estivo-autumnal variety, and never of the tertian form with which we are familiar. The clinical differences between these forms are very great.

In almost every patient who has arrived directly from Santiago the spleen has been enlarged. In some few, who came by way of Montauk, this could not be demonstrated, the result probably of time and treatment. These spleens, like those of malaria in general, were harder than in a typical typhoid. A peculiarity not uncommon in this disease and one which I have not observed in tertian malaria is that while the spleen may be enormously enlarged, it may in other cases be overlooked while perfectly palpable. That is, it is apparently large, but is at the same time situated under the ribs behind the position in which we expect to find it. A probable explanation is that while only moderately increased in size in these cases, it is yet extremely hard, enabling us to palpate with ease provided we seek in the right place. That this explanation is the true one I have satisfied myself in the post-mortem room. The observation, which has been made by others before me, is of practical importance in diagnosis, since the patient may be very sick and yet the spleen may be overlooked by the inexperienced.

Absence of chill is rather the rule than the exception, and when it occurs it is seldom pronounced. I have often seen it more severe in tertian malaria than in any of my cases of estivo-autumnal. In a certain proportion there may be a slight tremor seen by the observer, yet this is by no means constant even in the worst cases, and when it occurs the patient may deny all sensation of cold. Those whose general condition shows them to have been very sick before admission have as a rule had no chill or at most a slight chilliness. Chill may, however, occur. Sometimes the paroxysm is marked by vomiting, dizziness, severe headache, perhaps delirium, occasionally hematuria. Patients may become unconscious and may die. I have never myself seen unconsciousness, although I have seen a mental dulness which was a distinct approach to it. This sluggishness, as I have seen it, has lasted but a short time, but most of my patients had taken much quinine before I saw them. I am particular in speaking of its limitation to the paroxysm in order not to be misunderstood when dealing later with the diagnosis between this disease and typhoid. On the other hand, most patients are entirely clear throughout, notwithstanding that the temperature may be very high. They may have temperatures of 102° to 103° without feeling particularly sick. This is so common that the statements of patients as to the dates of their last fever are quite worthless. The exacerbations may be very sudden. One officer assured me that when upon duty, and without warning, he fell to the ground, and was unconscious until he found himself in his tent. As in other malaria the temperature can vary so rapidly that merely two readings of the thermometer in the day may be quite misleading.

Dangerous paroxysms occur after convalescence is apparently established. One of the most severe that I have seen was in an officer who landed seemingly in good health except that his spleen was large. He had not been ill since before leaving Cuba, and I knew of no reason why I should not have let him travel alone to Ohio, excepting that I had not seen his temperature chart. Two days after landing he became extremely sick, however, remaining so for days. At the end of this time he was feeble, anemic and emaciated. A very slight relapse occurred a week after the first. Altogether aside from their severity, there are distinct types of estivo-autumnal malaria as distinguished by the temperature curve, and the curve may change from one type to another in successive paroxysms. One of my patients whose blood showed both the malarial organism and the malarial anemia, and did not show the typhoid reaction at any time, yet had a curve fairly resembling typhoid. Far more common is a daily rise with a drop to normal or nearly to normal, simulating tertian but not typhoid, because beginning suddenly and ending suddenly after days rather than weeks. Or there may be an occasional rise followed by a more or less irregular interval of normal temperature, or again a remittent of three to five or more days, or lastly, a thoroughly irregular temperature.

In the course of a few days the patient, from being fairly well nourished, may present a picture of starvation. In all there is marked anemia. A patient sent home on a furlough was admitted in a state of collapse, with a temperature of 105.4°. In two days his red blood corpuscles had become reduced to 1,105,000 with 25 per cent. of hemiglobin, white corpuscles being 6,000. This extreme anemia, with skin sunburned and discolored by destroyed blood, gives a peculiar complexion; combined with a haggard expression, it makes a typical face. Now, after two months, the extreme type is not so often seen. The essential difference is less emaciation and less sunburn.

Cases such as I have described are emphatically cases for hospital treatment; that is, men who need frequent readings of the thermometer, who are liable to sudden and dangerous relapses, and who need disagreeable and expensive drugs, are better cared for in hospitals than in the community at large. The early

disbanding of regiments from Cuba is therefore in my opinion a blunder. Relapses are so common that they are to be expected until a certain time has elapsed without them. In some cases a definite cycle can be detected, and this is to a certain extent a guide as to how long a period of observation should exist before the patient is discharged. It is only approximate at best. Where no such data existed, I made the observation period seven full days of normal temperature. I should in future make it ten. Notwithstanding that men feel well, it is dangerous to send them away until time has passed since the last rise of temperature, however slight. In private practice, I should have it distinctly understood that if a man goes into the street, unattended, within ten days of a severe manifestation of estivo-autumnal malaria, he does it at his own risk. If he must go, it should be with an attendant prepared to inject quinine subcutaneously, if necessary.

By the first of October there was an increasing number of cases developing in the hospital, which I believe to be neuritis, whether due to malaria or to quinine I have no opinion. If I knew them to be due to quinine, it would not induce me to lessen the dose.

The majority of cases have diarrhea. It is so nearly universal as to suggest that it may depend on malaria, were it not a well-recognized disease of camps. In some cases the history shows it to be the remains of a dysentery. Some cases have a real dysentery with ulcerations. Of amebic dysentery I say nothing, because it did not happen to come into my service. The only dysentery autopsy that I was able to get showed a large intestine more or less inflammed throughout its length, with numerous ulcerations in its lower part.

There were some cases of typhoid. It will be seen that many cases presented a combination of symptoms that called for care in excluding this diagnosis. High temperature with remissions, large spleen and diarrhea make a suggestive symptom-complex, and I should not dare to say that errors of diagnosis may not have been made. In one case the expression and mental condition were also typhoidal for a few days, while the microscope and the after history make it probable that we were dealing with malaria and not with typhoid. Generally, the bright intelligence, with a temperature and at a period of the disease when a typhoid should be stupid, a moist and clean tongue, continued absence of rose-spots, and often the character of the dejections, should create doubt as to the presence of typhoid. As the case progresses, the continued absence of the Widal reaction becomes of value, and the temperature curve is subject to variations that are not expected in typhoid. With reference to the Widal reaction there is something to be said. Reports have been constantly coming to me of "moderate clumping" in cases in which typhoid certainly did not exist at the time. These reports need to be explained. They are not due to typhoid at some distant time in the past. Last year when all my patients were examined for this reaction, it was found to be positive only in typhoid, and in a few jaundiced patients; one of whom died of cirrhosis and was examined post mortem. The number of these cases among the Santiago men shows that there is some connection between "moderate clumping" and the Santiago expedition. It is conceivably due to one of at least three possible causes, either to malaria, to quinine or to mild unrecognized typhoid occurring in Cuba and recovering before the patients reached this hospital. My present knowledge will not permit me to express an opinion, but the subject is an interesting one for investigation.

Another class of cases are weak hearts, somewhat resembling those described by Da Costa as soldier's hearts, and of which he saw many from the Army of the Potomac. There are murmurs, probably inorganic, with little or no enlargement of the cardiac area. The pulse is compressible, rapid at first, becoming slow under treatment, but again becoming rapid on any little exertion and occasionally palpitation or pain. This condition seems to be due to exhaustion and recovers with complete rest, food, alcohol and small doses of digitalis and strychnia.

All the patients are at first more or less exhausted; but as they first land, especially if excited by friends, their appearance is often misleading. The excitement of getting home gives a fictitious strength which lasts a short time and is easily abused. Men who will sit up eagerly to answer questions will lie down wearily in a short time. These men need to be guarded against fatigue, and one of them on furlough applied at the hospital for the sake of peace and quiet and to be guarded against the friends who were killing him with kindness. Several, reported convalescent by the surgeon of a transport, had rises of temperature for several days which I thought were probably due to excitement on getting home. I believe this did not so often happen after soldiers' friends were put under the same regulations as to visiting as other patients' friends.

There have been a few cases of unresolved pneumonia, of initial phthisis and of diffuse nephritis, occurring in men who had passed the surgeon's examination some four months before, and who had made the campaign in the meantime.

In the treatment of estivo-autumnal malaria quinine has been the one drug used in my service. To discuss its value will surprise most readers, but I have heard it questioned. It is certain that relapses occur after long intervals, and I am told that the malarial organism is to be found at such times. It must be admitted that the good effect of quinine is not so striking as in the tertian malaria of home origin. In some cases, however, a single sharp relapse, in a man who had had no quinine on the way home, was the only one while with us. In other cases successive paroxysms were progressively lighter. Of the patients discharged from my own service and directed to continue quinine for a month, not one has returned to the hospital, although there must be by this time from thirty to fifty such men living within its radius, and of the class of its ordinary patients. Of course there has been some luck about this. With more patients or with more time, the story would certainly be different. Nevertheless I submit that this experience shows something for the efficiency of quinine. At present, I should formulate it, that the rôle of quinine in estivo-autumnal malaria is something like that of mercury in syphilis. We cannot promise to cure the patient. We cannot promise that he may not die, but we can make it unlikely. We cannot prevent relapses, but we probably can make them lighter and less numerous.

Quinine can be given in many ways; in our tertian malaria there is no room for doubt but that a single large dose given as the temperature begins to fall is far more efficient than when the same amount is given in divided doses. Theoretically, this is to give a hard finishing blow at the organisms at the moment when they have spent their force. Practically, the records

of the Children's Hospital among others, records which I studied for the report a few years ago, show that the fact agrees with the theory. With estivo-autumnal malaria the problem is more difficult, because first, it is harder to know when the real drop is beginning, and secondly, while we are waiting the patient may die. My rule has been to give from fifteen to twenty-five or thirty grains every morning in one dose, sick or well; to give twenty to forty grains more when the temperature falls, also in one dose; and to follow these large doses with dilute hydrochloric acid to ensure their solution. Many patients cannot take these doses already dissolved without vomiting. Pills are not reliable, especially if they are coated. Cachés followed by acid generally solve the difficulty. Where they do not I have found no advantage in dividing the dose into three.

With the diarrheas, it is to be remembered that sometimes we are dealing with debilitated persons having ulcerated bowels, some of whom will die and some of whom will remain sick. The pathological condition should be borne in mind when treating them. I do not see that we know that any anatomical change exists in many of them. They have worked hard in heat and wet on bacon and hardtack, and have diarrhea, which may possibly be functional. Many of them had ravenous appetites on landing, and I was inclined to feed them rather liberally, but insensibly the diet lists were reduced to suit one weakened stomach after another. I have allowed the greater number a carefully regulated amount of fruit and cannot see that it has done harm to more than a few. In carrying out this careful regulation of diets I have been immensely helped by the two senior members of the house staff, Dr. Weil assisted by Dr. Huntington. I have not seen that opium does any good, except by temporarily giving rest when dejections are frequent, and I have become very sceptical as to the value of any astringents. Mild salines, generally in the form of seidlitz powder, have, I believe, helped some patients and not others. Rectal irrigation with hot salt solution has been given to most of the dysenteries. Two complained of it. Most liked it because it relieved tenesmus. One got well, I think, because of it. In all cases it is debilitating if long continued. It was given with an ordinary syringe, the bowel filling up and emptying itself until the efflux was clear.

In concluding, I may say that the number of soldiers from camps in our own country who have been in my service is small; perhaps not over a half dozen, and that they have not been included in this report.

THE GRATUITOUS MEDICAL TREATMENT OF THOSE NOT IN NEEDY CIRCUMSTANCES.

BY HASKET DERBY, M.D., BOSTON.

In a recent article on "The Abuse of Medical Charities,"[1] Dr. James C. White discusses the question of the hospital treatment of patients who are able to pay a private practitioner his customary fee, and after an earnest and careful examination into the entire subject of gratuitous medical advice, as well as the different classes to which it may with justice be extended, he makes a remarkable claim. Stated briefly it is, in substance, as follows: That a patient amply able to pay his physician may yet apply at a hospital and receive free treatment, being justified in so doing by the fact that his case is of sufficient interest medically to be utilised for the purposes of clinical teaching. The poorer classes, Dr. White explains, may not and often do not afford a sufficient amount of material for the needs of a class. As a result either the course of teaching must suffer for lack of illustration, or else other sources be drawn upon. The well-to-do patient who illustrates a rare disease is not to be rejected as unfit for hospital treatment, but rather detained and exhibited to the class. The physician in private practice may well consent to forego the fee that might otherwise fall to his share, sustained as he will be by the consolatory reflection that the cause of medical teaching has thus gained, and that others are in their turn enabled to share a privilege which, during his student days, he himself may have enjoyed.

A claim of this kind, made by a physician and a teacher of Dr. White's eminence, cannot be allowed to pass unquestioned by those who believe it to be unjust. It appears to the writer that such a practice, if followed out by teachers in general, would encourage imposture, demoralize the public and wrong the profession.

Starting on the broad general principle that hospital services for both out- and in-patients are primarily intended for the benefit of suffering humanity, otherwise debarred by want of means from seeking medical aid, the writer entirely agrees with Dr. White that too hard and fast a line must not be drawn between the fit and the unfit. Assuming that the vast majority of applicants are unable to consult the physician at his office, a careful and sympathetic inquiry should be made into the circumstances of every doubtful case. Two men may have the same wages or salary; the amount amply sufficient for the wants of a bachelor fails to meet the expenses of a growing family. A person may even be able to pay a moderate fee to the kindly family physician, who is accustomed to consider his circumstances, but be unable to defray the comparatively large charge which the eminent specialist is understood to be in the habit of exacting. Advice therefore is naturally sought of the same authority at the hospital. A well-dressed and well-educated patient may be temporarily out of work or the victim of recent pecuniary disaster. A little tact on the part of the examiner suffices to clear up such cases, and under doubtful circumstances the balance should incline in favor of the patient. The mantle of true charity is both broad and elastic. And those who have enjoyed the advantages of treatment at the hospital should, in their turn, be willing to offer the only compensation in their power, and allow their cases to be utilised for purposes of medical instruction.

But we come now to the consideration of a different class. The individual who can pay but does not wish to is a well known and even a not infrequent visitor at every public clinic. Certainly during a thirty years' experience at the Massachusetts Eye and Ear Infirmary the writer rarely passed a week without meeting at least two or three of this class. Occasionally, it is true, people of means, attracted by the reputation of the institution, would visit it in the hope of gaining its advantages by the payment of a fee. But the placards liberally hung around the waiting-room, conveying the information that only those unable to pay were entitled to apply, would generally undeceive them, and they would take their departure. Sometimes, however,

[1] Boston Medical and Surgical Journal, October 12, 1899, pp. 362, 363.

they would boldly plant themselves in the chair before the surgeon and claim treatment either on the ground of being taxpayers, or more frequently on the plea that so and so of their acquaintance, a man whose means exceeded their own, had already succeeded in obtaining treatment. Often, however, the question of means was kept in the background, and treatment applied for as a matter of course. They knew they were sailing under false colors, they had never considered the question of exhibiting themselves for the instruction of the class and thus furnishing a *quid pro quo* for their treatment, they were simply endeavoring to defraud a public charity.

Let us now, for the sake of argument, assume that three such individuals apply together at a public clinic. They are attracted by the well-earned reputation of its chief, but can perfectly well afford to consult him at his office, being in the possession of ample means. They have, however, elected to attempt an imposition on him, in order to save the fee. They have even, as has sometimes happened, altered their dress and neglected their toilet for the purpose of not exciting remark among the general crowd of poor patients. But questioned by the clerk or the physician himself their story has broken down, and a weak attempt is made to excuse an evident fraud. They are all self-convicted impostors. The experienced eye of the head of the clinic has recognized the diseases of two as commonplace and devoid of special interest, while the third exhibits a rare affection, one that has been for some time vainly sought for the instruction of the class. The exhibition of this case will be of great interest to the class of students and fill up what would otherwise have been an hiatus in the course.

It must be acknowledged that the temptation to accept this patient is very great. According to Dr. White it should be yielded to. The patient is accordingly retained, is exhibited, lectured on and treated gratuitously. He may return again and again. Ultimately he is dismissed cured, his purse intact.

Meanwhile what becomes of the other two? Their acceptance is not pleaded for. They are to be sent to the right about, with the explanation that a hospital is no place for the wealthy. In vain may they cite the opposite treatment of their more fortunate colleague.

This situation has been assumed for the purpose of illustration. It exhibits the logical consequence of the carrying into effect of Dr. White's theory. Of course such an event as two or three of these parties coming together is not impossible, although highly improbable (the writer once had five consecutive cases of this stamp). But facts of this kind become generally known. The well-to-do public is thus encouraged to apply. Practice is diverted from the private members of the profession and tends more and more towards the hospital clinic. The profession at large suffers in order that the cause of instruction may be served. A class of patients for whom the hospital was never intended frequents its precincts. Funds that were given for purposes of pure charity are thus diverted from their original intent. It is unreasonable to claim that the average testator leaves his money to a hospital in order to add to its facilities for medical instruction. His primary object is the cure of disease, the relief of suffering, restoration to health. Instruction in regard to the laws of disease is legitimate, most desirable, and exceedingly imperfect unless aided by the resources of a hospital. But such institutions were not originally founded for this end. Hospitals are an outcome of Christianity, and were long under the special ægis of the Church. The patient was a *hospes*, an honored guest, not a simple object to be lectured on or a text for a discourse.

Thirteen years ago the writer read before a medical society of this city a paper,[2] "The Abuses connected with Gratuitous Medical Treatment." It contained the following passage, which would seem in this connection to merit repetition. He sees no reason, at the present time, for changing the views therein brought forward:

"The claim is sometimes made that, for purposes of medical instruction, all should be fish that comes to the net, that valuable material for demonstration is on no account to be thrown away, and that a rare and interesting form of disease may be retained and treated, even though the patient belongs to the better classes. But the end justifies the means as little in medicine as in theology. Such a patient has no claims whatever on an institution endowed for the benefit of the poor. His withdrawal from the ranks of those on whom the profession at large depends for support works a distinct wrong to the private practitioner, into whose hands he would otherwise fall. If the chief of the clinic elects to utilize in that way his own material, if he conscientiously diverts his patients from his office to the hospital, and foregoes his just remuneration for the benefit of his class, all honor to him who thus immolates himself on the altar of science. But he has no right to assume that his professional brethren are equally disinterested, or to aid the individual who is in fraudulent search of gratuitous treatment."

TUMORS OF THE FRONTAL LOBES;[1] WITH SPECIAL REFERENCE TO A CASE WITH PREDOMINANT SYMPTOMS OF A NEURASTHENIC TYPE.[2]

BY EDWARD WYLLYS TAYLOR, M.D.,
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(From the Sears Pathological Laboratory, Harvard Medical School.)

(Concluded from No. 17, p. 409.)

THE exact extent of the tumor inward cannot be determined owing to its almost exact similarity to the white matter. There are no hemorrhagic foci nor distinct areas of softening.

Microscopic Examination. — Section through the cortex and underlying white matter shows a somewhat cellular new growth with numerous fibres; ganglion cells are, in places, still to be made out. Myeline fibres are markedly degenerated, but by no means entirely destroyed, even near the surface. The growth is infiltrating in character; optic nerve normal. Diagnosis: glioma.

The case in its onset, development, outcome and pathological anatomy is evidently of exceptional interest. An analysis of the symptoms presented in its course, in the light of our knowledge of frontal lobe tumors, in general, is instructive.

[1] Our interest in what follows centres chiefly in the prefrontal area, namely, that portion of the brain lying anterior to the precentral sulcus; it has, however, seemed best to use the more general term, rather than insist upon a further subdivision.

[2] Read before the Boston Society for Medical Improvement, May 2, 1898.

[2] Boston Medical and Surgical Journal, November 12, 1885, p. 469.

The first noticeable point is the striking lack of characteristic signs pointing to intracranial growth during four years — up to within a few months of death. It is this period which we wish now chiefly to consider: First, of the general symptoms of brain tumor as applied to this case:

Headache. — Never constant, nor very annoying; the vague head symptoms characterized by pain were interpreted as manifestations of a so-called functional disorder, and certainly resembled closely the headaches of neurasthenia. The inconstancy of the position of pain lent a certain weight to this supposition, though it is well recognized that the pain of brain tumor is at times unsettled. The final and severest pain was in the occipital region.

Vomiting. — Apart from that which occurred following epileptic convulsions there was absolutely none during the period we are considering. There were vague complaints of a stomach disorder about which no definite information could be gained and which could not therefore be interpreted as indicative of grave organic central disturbance or again as causative of the cere-

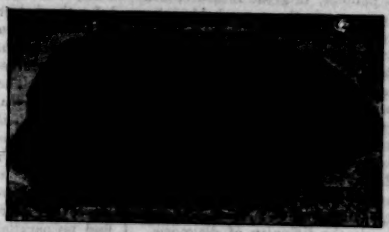


Fig. 3. Outer surface. Extent of tumor indicated by black line.

bral disturbance which existed, as had been suggested by certain physicians.

Optic Neuritis. — Dr. Standish's examination showed the discs normal. There was no disturbance of vision.

Vertigo. — Always a symptom to be interpreted with the greatest caution, both from its extreme frequency and from the great variety of conditions in which it may occur. The proper maintenance of equilibrium is brought about by so delicate a nerve mechanism that its slight derangement is a matter of the commonest experience. To be dizzy on slight provocation is an almost everyday matter with certain persons. To be dizzy constantly or over an extended period should excite suspicion, but not too quickly, of organic disease. In the absence of corroborative evidence as to its cause we are justified in withholding judgment until such evidence is forthcoming. In the case under consideration the symptom was regarded as a probable manifestation of a functionally disordered nervous system. Its real significance in the light of the outcome was not appreciated, for which we claim adequate excuse.

Generalized Convulsions — Epilepsy. — A relatively common symptom in cerebral tumor, but in many other conditions as well. That epilepsy, so-called, is a symptom and not a disease certainly does not require reiteration here. The underlying disease of which it is a symptom is varied and often undiscoverable. In the absence of syphilis an epilepsy coming on after the thirtieth year should be regarded with the utmost suspicion. In the case we are considering the suspicion was certainly aroused, in fact, it was for the unexplained convulsive seizures that the patient chiefly sought advice. The attacks in themselves indicated nothing of significance so far as a history was obtainable at the time of examination. Many of them were distinctly epileptiform in type, some involving but a few muscles; others had certain hysterical marks; none helped to a focal diagnosis. The brother of the patient has kindly sent me a detailed and accurate account of the convulsive seizures, which I reproduce in part:

I (his brother) witnessed three of the attacks from beginning to end; none of these were followed by unconsciousness. I also saw two others after the convulsions had begun; these were followed by unconsciousness. I saw several light ones which were not followed by unconsciousness. In all but two of his attacks he had sufficient warning of their coming to enable him to sit or lie down.

The three that I saw this summer came on suddenly and unexpectedly, the first sign being a flushing of the face,

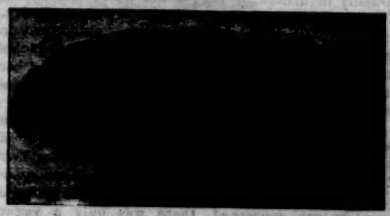


Fig. 4. Inner surface.

quickly followed by a slight tremor of the lower jaw; this lasted, in all but the last, less than a minute. Immediately following this, a clonic convulsion of the lower jaw, and a peculiar "cry," which diminished with the intensity of the convulsion. During this time, which was nearly a minute, there was great cyanosis of the face and neck, the superficial veins standing out, chin raised, with retraction of the head, hands clinched and arms half flexed in a state of tonic spasm. Immediately following the convulsion the face became pale, the head resting back, and for about a minute he appeared semi-conscious, would not answer questions, but upon recovering showed and said that he was not unconscious of anything. He appeared well after these attacks only pale for some hours and depressed. The first two occurred while he was seated, the last began while he was standing but he immediately sat down; there was no fall. He always complained of his head and would raise his hand to his forehead just as his face began to flush. He never could describe the feeling in the head better than to say that it was "a sort of numbness." This feeling preceded all but a few of the spells and enabled him to avoid falling. Of the two severe attacks which occurred two weeks preceding his death, one occurred during the night, the other in the morning after he had dressed. They were both of the same nature. The last seemed to be precipitated by his bending his body downward, leaning over; he at once walked to his bed and lay down. These convulsions lasted a little longer than the first, there was no "cry," less cyanosis of the face, the jaw muscles not involved, but those of the arms and legs from the hip down were in a state of clonic spasm; there was frothing of the mouth, froth tinged with blood (although he said that he did not bite his tongue), involuntary passage of small amount of urine. Convulsions were followed by

unconsciousness, slow, stertorous breathing, 15 per minute, pulse 45, full and strong. Unconsciousness lasted ten to fifteen minutes; came out of unconsciousness slowly, and would understand what he saw and what was said to him some minutes before he could reply. Did not seem prostrated after, only pale and depressed.

From the foregoing account it will be seen that the convulsive attacks were not all of the same type, a matter, to which, no doubt, a certain diagnostic significance might have been attached. Looking at the entire course of the disease, the convulsions were in a general way as follows. I again quote from his brother's observations: "He had first convulsions, followed by unconsciousness, then convulsions (slight) without unconsciousness, then unconsciousness (of the same type as the first) without convulsions." This observation corresponds closely with Oppenheim's description of the general convulsions occurring in brain tumor.[30] That a confusion of these attacks with hysteria is possible Oppenheim confirms, suggesting, however, that the inefficiency of suggestion argues against their hysteroid character. The attacks, in our case, although due to a tumor, were apparently markedly influenced by suggestion, hence an increase of the confusion attending their proper interpretation.

During the entire period, therefore, antecedent to the last stage of the disease, the convulsive seizures remained a mystery. In the absence of all other general symptoms, no diagnosis of their cause was more than suspected.

A marked slowing of the pulse manifested itself at the very end when other symptoms had developed which rendered the diagnosis no longer obscure. Our interest, as stated, centres in the possibility of a diagnosis a few months before. So far, then, as general symptoms are concerned, there was only a vague vertigo and anomalous convulsions upon which to base a diagnosis. They were insufficient.

Turning now to the so-called focal symptoms, of which mention has been made in the early part of the paper, — what assistance is to be found in their analysis? Absolutely none. First and most important, the mental state of the patient, and change of character. In spite of the fact that a large area of the left frontal lobe was involved there were none of the described mental signs. The higher psychical functions of judgment, reason and character, in the broad sense, were unimpaired. A few days before his death he was filling a responsible position and making decisions of importance with accuracy and judgment. There was at no time the slightest indication of the mental peculiarity described by Jastrowitz and Oppenheim.

When I last saw him the whole impression was that of a clear-headed, vigorous man, of exceptional intellect but neurasthenic. He was introspective, he had read too many medical books on the subject of epilepsy, he had discussed his condition at too great length with friends; he was, as we popularly use the word, "nervous." This "nervousness" manifested itself in typical ways, notably by the characteristic "phobias." He feared various circumstances in everyday life. He could not bear a crowd, nor a large building, nor a noisy street; he lacked confidence to ride a bicycle, without being able to give an exact reason for his timidity. His whole attitude was a mistrust of himself in numberless situations. He was constantly struggling with himself to overcome these vague disabilities, and on the whole, with excellent success. We find no mention of such a mental state as, in any way, characteristic of frontal lobe tumor. The curious aural experiences, of which he made special mention in his letter, written shortly before death, and which had long annoyed him, were interpreted as one element in a complex neurasthenic state, a supposition which the autopsy did nothing to controvert, since the temporal lobes were in no way involved. The slight irritability, which was apparent only to members of his immediate family, was regarded as the wholly legitimate expression of a sick man's temper. It was, at no time, sufficiently definite to be regarded as characteristic of organic disease, and simply lent weight to the general impression of neurasthenia. Had it not been for the epileptiform seizures, a definite diagnosis of uncomplicated neurasthenia would have been made. As it was, the feeling was irresistible that the neurasthenia was a fact, but with a complication of something else. Everything seemed to bear out this supposition. His improvement under suggestion was unmistakable; his phobias, in great measure, disappeared; his whole condition, on the mental side, changed for the better and he expressed himself as being more normal than for several years. Following this came his death. The question at once arises: were the mental, neurasthenic symptoms to be attributed to the tumor? The question is too subtle for detailed consideration here. Two facts, however, stand out prominently, first, if due in any way to organic disease, the symptoms yielded remarkably to suggestion, a matter which affords in itself considerable food for reflection. Secondly, if entirely independent of the tumor growing in the frontal lobe, their presence increased enormously the difficulty of diagnosis. I find no parallel case in the literature so far as I have been able to study it.

Admitting then, the anomalous character of these mental neurasthenic symptoms as indicative of disturbance in the frontal region, do we find any further evidence of a localized lesion?

There was never the slightest indication of Bruns's ataxic gait. The patient walked with perfect steadiness; his dislike of crowds and thoroughfares was due to a sense of confusion and vague dread, not to uncertainty of equilibrium. There was, further, no sign of contraction of the neck and body muscles, as described by Hebold,[30] Knecht,[31] Moeli,[32] Buradue[33] and Oppenheim.[34]

Speech disturbance was never prominent and could at no time be properly termed an aphasia. It consisted merely in what is often seen under normal conditions, a temporary forgetfulness of a word. During the various personal conversations with him I never noticed the slightest error or significant hesitation. From a diagnostic point of view nothing was to be learned from his speech. There was no agraphia, as seen by reference to his carefully written letter, already quoted.

We find ourselves at the end of this possibly too lengthy analysis, in a purely negative attitude. Of general symptoms we have epileptiform seizures of varying character, with a suspicion of hysteria, and

[30] Oppenheim: Geschwülste des Gehirns, pp. 54-57.

[30] Hebold: loc. cit.
[31] Knecht: loc. cit.
[32] Moeli: loc. cit.
[33] Buradue: Prog. Med., 1875, p. 520.
[34] Oppenheim: loc. cit.

no focal symptoms whatever, admitting the neurasthenic manifestations to have been coincident, and not in the relation of effect to cause; evidently insufficient for a definite diagnosis.

That tumors of the brain may run their course without symptoms, we have considerable evidence, and yet the suspicion of careless and imperfect physical examination is, in many of the reported cases, not to be excluded. Even excluding certain cases on this ground, there still remain a number well reported, in which either no symptoms, or very slightly defined ones, were observed during life, some of them, in which the tumor would ordinarily give definite focal signs. Macdonald,[25] Hadden,[26] Leimbuch,[27] Bramwell[28] have reported cases of this character. Most striking is one of Starr's[29] cases which might well be taken for a partial description of the one now under consideration. I quote what he says of it: "Thus in one case under my observation, a large glioma occupied the entire white substance of the frontal lobe upon the left side, yet the patient had suffered only from occasional attacks of epileptic convulsions, not preceded by an aura, and never unilateral, was as intelligent as ever up to the time of his death, though his family had noticed some irritability of temper at times, and on this account had occasionally questioned his responsibility for certain peculiarities. This man was under observation by most competent physicians for several years and was supposed to have epilepsy. His eyes were examined and found to be normal within a few weeks of his sudden death, which took place in a convulsion. He had never had the ordinary symptoms of a brain tumor."

Apart from the unusual neurasthenic manifestations in our case, the two histories are identical in their essential features.

That brain tumor may simulate hysteria is now well recognized. In this connection a case reported by Schoenthal[30] is of interest, in which a tumor was found in the left frontal lobe.

Speculation is legitimate and certainly interesting regarding the cause of the absence of symptoms in these instances. Were the matter thoroughly investigated it would, no doubt, be found that the tumors which do not produce symptoms are slow-growing and infiltrating, characteristics which belong essentially to the gliomata. It is possible to conceive that under these conditions large areas of the brain may be involved in so insidious a fashion that a certain vicarious function may be set up during the slow process of their growth. The fact is also to be borne in mind that the destruction of brain tissue, even in areas most affected, may not be complete in these tumors, which apparently was the fact in our case (see description of microscopic appearances). With our almost wholly vague knowledge of psychical localization, if such a term be admissible, the conception of vicarious function may have added weight, a matter, however, which can find no complete discussion here. It will be remembered that in our case the cortex was chiefly involved.

Of the treatment of the case under consideration little need be said beyond drawing renewed attention to the remarkable effect of suggestion in alleviating the most troublesome symptoms, an element in treatment which to our mind should never be neglected, whatever the nature of the underlying disease may be.

As we sum up this case, we would suggest the following points as of special interest:

(1) The absence of characteristic symptoms of brain tumor in general.

(2) The absence of symptoms ordinarily seen in tumor of the frontal lobes.

(3) The early presence of convulsive seizures and the importance of their just interpretation.

(4) The striking symptoms of a neurasthenic character, and their diminution under suggestion.

(5) The negative evidence toward the theory of a psychical localization in the frontal lobes.

(6) The suddenness of death.

In conclusion we cannot do better than quote from Oppenheim, who apparently has said the last word in this, as in many other neurological matters: "Zum Schlusse möchte ich noch hervorheben, dass die echte Epilepsie und auch die schon beschriebenen hysteriformen Krämpfe relativ oft bei Geschwülsten des Stirnlappens wahrgenommen wurden, und manchmal sehr lange oder anerad das einsige Zeichen derselben bildeten."[31]

[25] Macdonald: Brain, 1890, xiii, p. 83.]
[26] Hadden: Brain, 1899, xi, p. 292.
[27] Leimbuch: Deutsch. Zischrt. f. Nervenheilkunde, 1891, Heft 24, p. 319.
[28] Bramwell: Intra-cranial Tumors.
[29] Starr: Nervous Diseases by American Authors, 1895, p. 481.
[30] Schoenthal: Berl. klin. Woch., 1891, No. 10, p. 254.
[31] Oppenheim: Geschwülste des Gehirns, 1896, p. 90.

LOCALIZED NEURITIS.

BY S. G. WEBBER, M.D., BOSTON.

MANY patients have a slight local disturbance of sensation, not so severe as to cause disability, yet sufficiently annoying to give considerable discomfort. At times his discomfort increases to such a degree as to amount to pain, and then it interferes with the full and free use of the limb. Many persons thus troubled do not consult a physician because the discomfort is so slight they disregard it as unworthy of notice. Sometimes, however, after a while the pain becomes more severe and continuous.

In most if not all these cases the cause of the disturbance is local neuritis or perineuritis. At some time in the past there has been an injury or a source of irritation to the nerve, which has given rise to an inflammation of its sheath or of the nerve itself. The sheath has become thickened and pressure is exerted upon the nerve fibres, hence the discomfort and pain and the inability to use the limb with normal freedom. The discomfort is not continuous, it varies with the condition of the patient. A slight increase of blood pressure around the nerve will increase the pressure and thus increase the pain, or the patient's health is less vigorous or his mental condition varies and he is less able to resist the disturbance and feels the pain more keenly.

The reflex influence upon the mind of continuous uninterrupted painful impressions is the exciting cause of changes in its power of resistance so that its healthy tone is disturbed and a series of phenomena follow which we call hysterical. We may be surprised at such serious and general disturbance arising from so insignificant an injury and such slight sensory irritation. We forget that the pain has been continuous and overlook the fact that there has been a long continued vascular or circulatory change in the brain as the attendant upon the mental effort made to resist the painful impressions coming from the seat of the ori-

ginal injury to the nerve. Hence the nerve cells have been kept in a state of mild but continuous activity until they have undergone a change of nutrition which is not conducive to healthy action.

The causes of this local neuritis or perineuritis are varied — blows, pressure, action of cold or heat, of poisons. The neuritic disturbance may show itself soon after the action of the trauma, or it may not give evidence of its presence for a variable time afterwards. The cause may act slowly or it may act suddenly and exhibit its injurious effects at once.

Thus a blow may spend its force on the nerve itself, or the surrounding tissues may partially protect the nerve and the ill effects become evident only after time enough has passed for the surrounding inflammation to give rise to pressure or be communicated to the nerve. So also a less severe or sudden form of pressure may cause symptoms of nerve injury within a short time or they may not be perceived for a long interval, sometimes not until years after the injury, when the patient has almost forgotten the occurrence. Where a long time elapses between the injury and the symptoms of neuritis it is probable that the morbid process has been advancing slowly until at length the pressure on the nerve becomes sufficient to cause symptoms of irritation. Or it is possible that the patient when in health does not notice the irritation, the system is in such a state of health that the brain does not notice the disturbance, but when the strength is run down, there is less power of resistence and then the messages sent from the affected part cannot be disregarded and pain is felt. The difference is not in the nerve, but in the brain.

As instances of discomfort due to very slight causes, which seem insignificant, I may mention two in which there was numbness along the front of one thigh, as if the part were "asleep." There was no pain, no tenderness over the nerve. In both these the cause of the almost insignificant discomfort was a bunch of keys carried in the front trousers pocket, which pressed on the anterior crural nerve or one of its branches.

In another patient there was similar discomfort along the sciatic nerve from pressure of books carried in the hip pocket. The patient was a commercial traveller and carried his memorandum book in that pocket.

Another salesman who travelled nights sat in the cars with his sacrum and crests of the ilia resting on one seat and his feet on the opposite seat. In this position there was sufficient pressure upon the sciatic nerve to cause a pain down the leg in its course.

In all these patients there was a fear that the pain, which was very slight, might be the forerunner of something more serious. In each one also it was only after a careful inquiry into the patient's occupation and habits that the cause of the discomfort was discovered. A removal of the cause was sufficient for a cure.

Sometimes the pain is felt only long after the pressure has ceased. A man was gripped hard on the right arm by a strong man. The immediate pain was felt several months after and then he seemed perfectly well for seven years; then without additional cause the right hand began to give trouble, he awoke with pain in the upper arm and shoulder, later the pain was felt in the forearm, the index and middle fingers were numb. The arm was tender over the plexus just below the axilla, over the radial and median nerves.

Another gentleman was sent to me who had had trouble for three months with his left hand and arm. The fingers were cold and numb as if "asleep." He could not use knife or fork easily, there was atrophy of some muscles. The ulnar nerve was enlarged at the elbow and the groove for the nerve was partially filled. Seven years previously he had broken his arm at the elbow. He recovered from that so that he was able to use that arm freely; he could row a boat without trouble. When seen he could not lean on his elbow without causing pain. Probably in this case the nerve had been irritated by pressure when the elbow had been pressed against hard substances by leaning upon it, and the sheath of the nerve had slowly thickened until the constriction gave rise to the symptoms of which he complained.

Sometimes a more definite injury is the starting point of a neuritis, which may not be confined to the branch primarily injured, but may spread to other branches of that nerve, to the trunk, or to other trunks.

A boy eleven years old hit his elbow bruising the ulnar nerve. He had pain in the arm for several weeks. About four weeks after the injury the arm began to waste away. The atrophy was confined to the region supplied by the ulnar nerve.

A lady tried to push up the window-sash, using the radial border of the forefinger to press on the woodwork. Afterwards she had pain in that finger, which gradually extended until the whole arm was implicated. A hysterical condition was developed and she had a severe time, pain, tenderness, swelling and various general hysterical symptoms.

A young lady of seventeen while testing a mineral with nitric acid was burned by the acid from the breaking of the test-tube. The acid ran over the inside of her hand. Neuritis set in and extended up the arm until the whole arm and shoulder were affected. There was loss of power in the arm.

Another lady had trouble in the whole arm from hitting the end of the middle finger.

A gentleman hit his elbow bruising the ulnar nerve. Seventeen years after he had trouble in the hand and wrist, the pain being worst in the little finger and ring finger, sometimes it extended up the arm.

Neuritis may result from the influence of different poisons, as syphilis, of which I have seen only one very well-marked case, the disturbance being in the arm, beginning in the ring and little fingers.

Lead is most frequently the cause of neuritis in the arm and need be only mentioned, as it is not uncommon and is usually readily recognized, though not always.

Alcohol may cause not only multiple neuritis, but it may also be the efficient cause of a localized disturbance, or it may put the system into such a condition that some very insignificant cause starts the inflammation in a nerve.

Arsenic is another of the poisons which give rise to this affection. The arsenic may be received through the mouth into the stomach as in ordinary poisoning, when the neuritis is likely to be multiple, or it may enter the system through the lungs, as is probably the case in poisoning from wall paper.

The neuritis which occurs during or after acute diseases, as typhoid fever, small-pox, pneumonia and other febrile diseases is probably due to the action of some toxic substance formed in the system.

The same is true in some cases of that form of disturbance which is usually spoken of as rheumatic, or arising from a cold, though in many cases the action of the cold is local and not general. This may have been the case in a young man who went to a fire and played the hose on the fire for half an hour, though the neuritis did not appear until two days later. The pain was felt first in the right shoulder and later in the whole of right arm. It is possible there had been a wrench or strain of the arm as one causative factor.

A previous injury may be the reason why the effects of cold show themselves in particular nerves instead of more generally.

Rheumatism was more certainly the cause in a man who worked in a cold, damp cistern, dipping out water. There were skin disturbances due to the neuritis, which were interesting and instructive. The fingers of the right hand were of a dark bluish color, rather mottled, the ends of the nails curved, the epithelium was increased under the nails, the skin was inclined to peal off the ends of the fingers. In some cases there is glossy skin, which is quite characteristic of nerve lesion.

The question which most interests the patient is whether he will recover from the pain and discomfort and disability resulting in these cases from the neuritis. The cases I have so briefly mentioned show that sometimes the effects of very slight injuries are lasting and seem to become more serious with the lapse of time. If left to themselves some, perhaps it would be correct to say most, of the slight injuries of nerves recover without any treatment and leave no signs of trouble behind. This is so with most of the bruises one receives in the course of his life. If, however, the bruise is severe, as when the nerve is strongly pressed against a bone, there is danger lest the changes around or in the nerve become sufficient to cause subsequent trouble, and long continued inconvenience or pain follow. In the majority of cases where the patient has been able and willing to follow directions long enough there has been partial or complete recovery, the pain and disability have been much diminished or entirely removed.

In severe cases rest and constitutional treatment are necessary. For local treatment I have obtained the greatest benefit from small blisters along the tract of the affected nerve, a second blister not to be applied until the first has healed, and then on a different spot. The blisters to be only about quarter or third of an inch in diameter. Next to these electricity and massage have done the most good. Internal medication, except as stated above and where there has been poisoning from lead or some toxin, does little good, even in rheumatism doing less than one might expect.

THE DANGERS OF LIQUEFIED AIR. — While experimenting with liquefied air at the Brooklyn Polytechnic Institute last week, Prof. Irving W. Fay of the Chemistry Department was seriously injured about the face, and it is reported that he will probably lose the sight of one eye. He had mixed with it some red phosphorus, and poured out the mass upon a piece of paper on the table, and was watching the changes take place in the phosphorus. He then stirred the mixture with a glass rod when the explosion occurred which produced the injury. Fortunately, the force of the explosion was exerted downward, wrecking the table.

Clinical Department.

CHOLECYSENTEROSTOMY WITH THE LARGE INTESTINE, BY MEANS OF THE MURPHY BUTTON.[1]

BY W. L. COUSINS, M.D., PORTLAND, ME.,

Ex-Assistant Resident Surgeon Johns Hopkins Hospital; Adjunct Surgeon Maine General Hospital; Surgeon Diseases of Women, Maine Eye and Ear Infirmary.

I CALLED to see Mrs. L. on March 1, 1896, and found her suffering from intense abdominal pain, which she told me she had first noticed three days before calling for me.

The pain she described as being of a colicky nature, which seemed to originate in the right iliac fossa, and diffuse itself until it became general, that is, over the entire abdomen. She had not had a movement of the bowels for three days. I examined her and found the abdomen distended and tympanitic, except in the right iliac fossa, where there was an area of marked dulness and decidedly tender to the touch. She was vomiting every few minutes. She informed me that she had been taking an opiate (probably morphine) to relieve the pain, the exact amount of which I cannot give.

At this time the temperature was a little elevated, not sufficient to cause alarm in an ordinary case, but the pulse varied from 120 to 130, rapid and running, indicating a severe infection. Under the circumstances the opiate was at once stopped and calomel was given in divided doses, saline enemas being given by the rectum. This treatment did not relieve her until March 4th, although a large amount of fecal matter was washed away, sufficient to allow the insertion of the rectal tube its entire length of about fifteen inches.

I continued this treatment; I thoroughly Paquelined the entire abdominal surface, preferring this method of counter-irritation to that of blistering, for the reason that if properly applied no blistering would result. The patient suffers but little from its application; it relieves the pain, and there is no danger, as there is in giving morphine, of checking secretions, paralyzing normal activity of the intestines and masking the symptoms, acting as it does reflexly through the sympathetic system, in evacuating the entire intestinal tract.

After a large evacuation of the intestines had been obtained the abdomen was much less distended; the pain had ceased, and upon palpation a distinct tumor was noticed and felt in the right iliac fossa, extending from a point about three inches above Poupart's ligament to a point midway between the umbilicus and the anterior superior spinous process of the ilium, thence upward, nearly to the margin of the liver, between which there was a tympanitic area.

The tumor also extended posteriorly to the lumbar region, as far as the anterior margin of the quadratus lumborum muscle. In every way it resembled an attack of appendicitis with abscess formation.

I continued giving salines, and on the second or third day, after the bowels had been thoroughly moved, I noticed a slight discoloration, or a yellowishness, of the conjunctivæ, but paid no special attention to this, for the reason that I thought the flow of bile had, in some way, become occluded, owing to the long time which had elapsed since the patient had had a free movement of the bowels, the fecal matter blocked up

[1] Read before the Maine Medical Association.

within the upper portion of the small intestine, and was most strongly led to believe this, owing to the fact that the patient, immediately before the bowels were relieved, had vomited fecal matter in large quantities. The third day she was more jaundiced, the abdomen being considerably colored.

I then asked the patient in regard to previous attacks of this nature, as she said that she had had a number of attacks, the pain always being in the same spot, as she had first noticed it in this attack, the so-called McBurney's point. She gave no history of ever having had gall-stones.

I advised her as soon as she was able to be moved to go to the Maine Eye and Ear Infirmary, where I could more carefully watch her and, if necessary, operate, which might be necessary at any time.

The temperature was at this time but slightly elevated, 99° F.

I advised her as soon as she had recovered sufficiently to undergo an operation for the removal of the appendix, telling her that I firmly believed that she had an appendiceal abscess.

She was moved to the hospital. She improved very rapidly, and I fixed the day for the operation for the 14th, but on the afternoon of the 13th she was taken with a severe pain in the region of the appendix; the temperature suddenly rose to 104° F. and we thought it necessary that the operation should be done immediately.

I would add here, that up to the morning of the 13th jaundice had disappeared, but on the afternoon of the same day she was decidedly jaundiced, vomiting and suffering the most excruciating pain; abdomen was distended, tympanitic and tender at all points, especially in the region of the appendix.

It is interesting to note the sudden appearance of the second attack of jaundice.

It then occurred to me that owing to the large size of the indurated area, which extended so far upwards toward the liver, it was a distended gall-bladder, and the symptoms were due to the passage of gall-stones. I was so firmly convinced at this time of its being gall-stones that I told the family that probably it was appendicitis, and that no doubt she had a distended gall-bladder which contained gall-stones.

We operated at four o'clock on the evening of the 14th. I was assisted by Dr. John F. Thompson and Dr. N. M. Marshall.

On account of the feeling that it was appendicitis, we made our first incision a little to the outer side of the McBurney point, in fact, very near the crest of the ilium, as the tumor seemed to be more prominent at this point.

The abdominal cavity was opened, and we found everything firmly bound down by adhesions, but no abscess due to appendicitis was found, but there had been, and was still existing a peritonitis with a great deal of exudate which was firmly clinging to the abdominal peritoneum. I then extended my finger upward, and discovered the gall-bladder greatly distended by fluid, so much so that its solid contents, the gall-stones, could not be felt.

We then thoroughly washed out the abdominal cavity with quantities of sterilized plain water, 110° F., introducing it through a rubber tube, which we passed into the abdominal cavity as far as possible.

A second opening was made over the gall-bladder which fully and clearly exposed it. I then found that the gall-bladder was firmly bound down by adhesions and perforated, some of its contents having escaped into the general peritoneal cavity. The apex of the gall-bladder was adherent to the hepatic flexure of the colon, and at the point of contact with the intestine, gangrenous.

The gall-bladder was then brought up into the wound and anchored with catgut, after which it was opened, its cavity explored, every precaution being taken to prevent the escape of the bile into the general peritoneal cavity, although a large amount of it escaped, which was afterwards washed out by successive washings with sterilized water.

From the gall-bladder fourteen stones were removed, the largest of which was the size of an acorn, and the smallest, the size of a beech-nut.

After irrigating the abdominal cavity with plain sterilized water, the lower angle of the wound was closed with silkworm-gut, while the edges of the gall-bladder were firmly sutured with catgut to the edge of the upper angle of this incision. The lower wound, over the region of the appendix, was left open, a gauze drain was inserted into the abdominal cavity of about four inches.

The toilet of the wound was then made, a large quantity of sterilized gauze applied to the wound, and an abdominal bandage put on, holding the dressing in place.

The wound was dressed on the following day, gauze drain removed from the gall-bladder, the wound irrigated, the drain reinserted into the gall-bladder. The gauze was allowed to remain in the lower wound for forty-eight hours, and then removed entirely, allowing it to close by granulation.

The temperature at this time was 99° F., having fallen from 104° F. Pulse was good.

On the third day after the operation, the patient developed a fecal fistula which closed in a few days, and the patient made a rapid recovery.

When the patient left the Infirmary she was feeling well, although a biliary fistula remained, which discharged a considerable quantity of bile.

I again saw the patient the first of December of the same year, when she was suffering from the fistula which had existed since I saw her the last time. It was discharging large quantities of bile, causing her much inconvenience, as it saturated her clothing several times a day. I advised an operation for the closing of the fistula, after first satisfying myself that the common duct was permanently closed.

I sent her to the Infirmary on the sixth day of December, and on the seventh, assisted by Dr. Seth C. Gordon and Dr. O. P. Smith, I made a cholecystenterostomy, by means of the "Murphy button," with the *large intestine*, at the hepatic flexure of the colon, which I think was the first operation of its kind done in this State, and one of the few successful ones ever made in the United States. The button came away on the fifteenth day.

The operation was of particular interest for two reasons, namely, the selection of the large intestine for the anastomosis, and secondly, its influence on digestion.[1]

The patient made a good recovery, and is to-day well.

It was suggested at the time of the operation that

[1] The anastomosis was made with large intestine, not from choice, but necessity — the parts being too adherent to admit of usual methods.

the bile flowing into the large intestine would produce a troublesome diarrhea, but on the contrary, she has had none since leaving the hospital. Before the operation she had suffered from habitual constipation for years, but since she has had regular defecations each day.

In January, 1898, I wrote to the National Bureau of Medical Bibliography asking that department to review the work done upon the gall-bladder with especial reference to this operation, that is, substituting the large intestine for the small, and in reply learned that the operation, although it had been attempted several times, had in each instance resulted fatally.

I then wrote to Dr. J. B. Murphy, of Chicago, asking for information. In reply he courteously informed me that he had done the operation himself but once. The patient recovered. That he knew of three other cases in which the operation had been a success.

About the middle of January, Mrs. L. came to my office, and stated that she had been working since leaving the Infirmary, and was now perfectly well. Her digestion was normal, had a regular movement of the bowels each day, without any cathartic. Her appetite was good, and she had never been so well for years as at the present time.

Mayo, of England, who has recently written a book upon the diseases of the gall-bladder, states that in his opinion an anastomosis should never be done with the large intestine, except in exceptional cases; that he had made the operation eleven times with the small intestine, selecting either the duodenum or the jejunum for the operation, all successfully.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BOSTON.

PENAL SERVITUDE AND INSANITY.

THE Commissioners and Directors of Prisons in England give some interesting data relative to imprisonment and insanity.[1] The total number of insane dealt with in local prisons was 380, of whom 216 were remanded for observation and therefore already in a doubtful mental state on committal. The majority of this number were found insane on arraignment. Excluding these cases but 164 remained, of whom 34 were reported as having been previously insane, and 121 were found to be insane on reception, so that only 43 of the whole number developed symptoms of unsound mind in prison. Analysis of the 43 cases developed in prison shows that six occurred within one week, six within two weeks and seven within a month. It is therefore obvious to any one who has even a superficial acquaintance with the development of mental diseases, that imprisonment can have little to do with the causation of any of them. Subtracting the 19 that came on within a month, 24 cases remained, which developed within a later period. Of this number only five occurred after the completion of six months' imprisonment, the remainder occurring before the expiration of that time. These facts are, therefore, quite inconsistent with the view which has been reiterated from time to time in the daily press that imprisonment gives rise to insanity, for these figures seem to show the contrary.

Douglas,[2] commenting upon this report, recognizes that the first offender may show, immediately after commitment to prison, a normal depression, which wears off under the influence of routine work and exercise. They often show interest in their work, and, in England, are kept separate from habitual criminals. They often feel that their future is regarded as hopeful, and many derive from this feeling considerable mental comfort and assuagement. This normal depression, he thinks, is not great enough to operate detrimentally upon a normally constituted mind, and, even with a tendency to insanity, the quiet routine of the prison, with its freedom from excitement, may conduce to exempt the individual from the risk of an attack. To the recidivist, confinement is by on means terrible in prison, as he is kept clean and comfortable, given sufficient wholesome food, and the labor exacted from him is less severe than that which he would need to do outside to gain a livelihood. He is shut out from worry and anxiety, from alcohol and deleterious excitement of all kinds. The quiet life, far from predisposing to insanity, Douglas thinks actually shields many from attacks to which they would otherwise be exposed from the nature of the life they lead outside. Remorse is so rare among criminals, especially among recidivists, that it is of no importance as a cause of mental derangement.

HEREDITY IN RELATION TO MENTAL DISEASE.

Farquharson,[3] from a study of 1,200 cases of hereditary insanity, comes to the following conclusions:

(1) Authorities vary greatly in the estimates they give of the frequency of hereditary predisposition in cases of insanity. In the Cumberland and Westmoreland Asylum 30.7 per cent. of all the cases admitted showed a history of previous insanity in their families.

(2) A history of insanity in relatives, whether in the direct line or collateral, may be deemed sufficient evidence of hereditary predisposition. It is not actual insanity that is transmitted, but an inherited flaw in the nervous organization. This may remain latent for one or more generations, and subsequently reappear.

(3) Hereditary predisposition to insanity is strongest when it is inherited through both parents.

(4) The maternal influence is very slightly more potent than the paternal in transmitting the tendency to insanity.

(5) Insanity inherited through the father is slightly more dangerous to the sons than to the daughters; insanity inherited through the mother is markedly more dangerous to the daughters than to the sons.

(6) The female sex is markedly more liable to suffer from hereditary insanity than is the male.

(7) The order of sequence of the different forms of mental disease amongst the cases admitted into Garlands Asylum, as regards the frequency of hereditary predisposition which they exhibit, has been as follows: 1. Congenital imbecility. 2. Melancholia. 3. Mania. 4. Epileptic insanity. 5. Dementia. 6. General paralysis.

(8) The suicidal impulse is very frequently present in cases of hereditary insanity.

[1] British Medical Journal, September 11, 1897.

[2] Journal of Mental Science, April, 1898.

[3] Loc. cit., July, 1898.

(9) Suicide and dipsomania have a marked tendency to be transmitted unchanged from one generation to another.

(10) In most cases, however, the form of insanity in the descendants shows great variations from that which occurred in the ancestors, and different members of the same family or generation may exhibit widely different varieties of mental disease or other nervous disorder. Insanity, the tendency to which is inherited, may have been preceded in the family not by actual insanity, but by other forms of nervous disease.

(11) In successive generations the propensity to mental disease may become gradually intensified; finally a state of amentia is produced, with a tendency to bring about extinction of the family. On the other hand, the tendency to mental disease may become gradually eliminated in the course of generations.

(12) The origin of hereditary neuroses in a family can sometimes be traced to alcoholic excess in the ancestors.

(13) Hereditary predisposition to insanity in a family is frequently associated with the tubercular diathesis.

(14) The exciting causes of attacks of insanity seem on the whole to be of much the same nature in the hereditarily predisposed as in those without predisposition.

(15) Hereditary insanity is specially prone to show itself at critical periods of life; thus puerperal insanity is proportionately more frequent in the hereditarily predisposed than in those without predisposition.

(16) Relapses are more frequent in cases of hereditary insanity than in non-hereditary cases.

(17) Hereditary cases are apt to suffer somewhat earlier in life than non-hereditary cases.

(18) Attacks of hereditary insanity may come on at any period of life. Even in senile insanity the proportion of hereditary cases does not fall very far short of the proportion existing in cases at all ages combined.

(19) Hereditary insanity frequently makes its appearance at about the same period of life in successive generations. When the taint is becoming intensified it tends to make its appearance at an earlier age in each succeeding generation; and, conversely, when the taint is becoming eliminated it tends to appear later in life in each succeeding generation.

(20) The proportion of unmarried persons is considerably higher amongst those suffering from hereditary insanity than amongst those without predisposition.

(21) The recovery rate in hereditary[5] cases of insanity is considerably higher than in non-hereditary cases.

(22) The death-rate is lower in hereditary than in non-hereditary cases.

(23) The duration of life is somewhat shorter in those suffering from hereditary insanity than it is in the insane generally.

(24) A larger proportion of deaths from tubercular diseases occurs in cases of hereditary insanity than in non-hereditary cases.

(25) The duration of the attack in hereditary cases that recover does not seem to differ very much from that in non-hereditary cases.

AUTO-INFECTION IN THE INSANE.

Ceni and Ferrari[6] have made a bacteriological examination of the blood of eighteen patients suffering either from acute delirium or the confusion associated with repeated convulsions. In each case cultures were made from the blood daily as long as the severe mental symptoms lasted. Growths of bacteria were obtained from seven of the cases (one, epilepsy) while in the remaining eleven the results were negative. In the former group there had been in each case considerable fever, in the latter none. In the positive cases pure growths were obtained in each case, the form remaining constant with each individual. The growths were either staphylococci or streptococci. They concluded that, in their cases, bacteria are present in the blood only when there is fever, and the fever and course and result of the illness depend more upon the virulence than upon the kind of bacteria. The bacteria have no causal relation to the mental disease but are merely a complication.

Tomlinson,[7] from bacteriological examination of the cortex and cerebro-spinal fluid, in forty-seven cases of insanity, thinks that the presence of micro-organisms involves their pre-existence in the organism and that their presence during the course of acute mental disturbance is not relational or causative but associative.

SYPHILIS AND INSANITY.

Dawson,[8] after reviewing the pathological changes in the brain which may be caused by syphilis, suggests a provisional classification of the forms of mental disease due to syphilis as follows:

I. Insanity of early syphilis (primary and secondary).

(*a*) Acute toxic insanity.

(*b*) Melancholia with or without dementia, probably due to cerebral anemia.

II. Insanity of late (tertiary) syphilis.

(*a*) Insanity due to syphilitic disease of the base and vessels.

(*b*) Insanity due to syphilitic disease of the convexity.

Most, if not all, cases of cerebral syphilis in which insanity has been caused by epilepsy will fall under the second head (II, *b*) but should rather be classed with epileptic insanity, being only indirectly due to syphilis.

III. Metasyphilitic (parasyphilitic) insanity.

(*a*) Insanity of tabes.

(*b*) General paralysis.

This classification includes only cases in which there is a gross anatomical change at the basis of the mental symptoms. Syphilis, however, may indirectly affect unstable minds by the fear of contracting the disease, the worry, remorse and anxiety produced by its existence and the pain, insomnia and other sensory symptoms so common in its course.

THE PATHOLOGY OF INSANITY.

Alzheimer[9] states that the only definite pathology we have in insanity is in general paralysis, senile dementia, focal brain diseases, idiocy and imbecility. It is very difficult to determine the basal pathology on account of the complicated structure of the brain. Furthermore, we often see only the terminal stages of the various psychoses and we do not yet know thoroughly the normal structure of the cortex. The old methods of research are useless and the new methods, such as Nissl's stain and Weigert's neuroglia

[4] Rivista Sperimentale di Frenatria, xxiv, 182, 1898.

[5] American Journal of Insanity, April, 1897.

[6] Journal of Mental Science, April, 1898.

[7] Monatschrift. für Psych. und Neurol., April, 1897.

stain will show the finest pathological changes. Weigert's stain shows four conditions: an enlargement of the cell body, a proliferation of the glia cells with division of their nuclei, an increased production of glia fibres and a heaping up of pigment in the protoplasmic body of the glia cells with signs of degenerative changes in the nucleus after or without fibre formation.

In the curable psychosis, without subsequent mental defect after recovery, as in febrile delirium, the glia is essentially unaffected. In severe cases, such as acute delirium, the glia cells show changes (proliferation, increased fibre production) which remain. In intoxication psychoses the glia changes vary with the severity of the intoxication. In dementia the changes are very marked and they are also characteristic and marked in general paralysis. In senile cases there is a tendency to focal changes in the glia in different vascular regions. Glia proliferation in the superficial layers is characteristic in epilepsy. We have no data as to melancholia or paranoia. The greater the changes in the glia the worse the prognosis, the degree of change corresponding to the degree of dementia. It is useless to try the older methods and Nissl's stain is rather too delicate, as the ganglion cell is altered by general diseases, such as pneumonia or nephritis, which may have caused death. He reports several cases of exhaustion psychoses, with mild confusion, which showed marked changes in the ganglion cells all over the cortex, but without special changes in the glia, and two other cases, due to some profound intoxication, with marked delirium and sepsis, where there was more destruction of the cells and more active changes in the glia.

GENERAL PARALYSIS.

At the International Congress at Moscow, in 1897, Krafft-Ebing [9] read a paper, bearing upon the influence of syphilis as a cause of general paralysis, which has occasioned considerable criticism. After noticing the general effects of the stress of modern civilization and the great increase in the disease of late years, he mentioned syphilis as the most important and possibly the essential factor and reported an experiment made in his clinic that has an important bearing on the question. Eight paretics, in the advanced stage of the disease, were inoculated with fresh secretion from a chancre and kept under close observation for one hundred and eighty days. In none of the eight were any syphilitic manifestations observed, and he concludes that they were all latent syphilitics and hence immune. In none of these cases had any primary manifestations of the disease been observed. As additional evidence of the syphilitic origin of general paralysis, he adduces the facts of congenital syphilis in juvenile cases, the greater frequency of the disease in cities, its greater frequency among military men and its rarity among clergymen and women of the higher classes. Where syphilis is rare, general paralysis is rare and its chief causes may be stated as civilization and syphilization.

The statement that where syphilis is rare general paralysis is rare receives further confirmation from Ehler's studies in Iceland.[9] Owing to the isolation of the various families at great distances from each other, syphilis is relatively infrequent and general paralysis unknown, the only case that the author was able to find having occurred in a sailor, who had lived in foreign countries and acquired syphilis there.

[Can this be an explanation of the reports from the State Hospital at Warren, Pa., where, in sixteen years, there are said to be only nine cases of general paralysis in 3,844 admissions? — REP.]

Krafft-Ebing's experiment, although harmless in its results, has been sharply criticised by Christian,[10] who says, "Although Krafft-Ebing has not feared to inoculate with syphilis eight poor devils without defence, affected with general paralysis, what does it matter that they were incurable, doomed to certain and perhaps speedy death?" "Have we the right," asks Christian, "to experiment upon them as upon the lower animals? The result of the experiment was necessarily uncertain but every one knew, or should know, that inoculating such patients with any active virus exposed them to a certain danger. One or more of those inoculated might have suffered from accidents of phagendenism or severe tertiary lesions." The victims were unable to give their consent, and Christian wonders how Krafft-Ebing could cover such acts with his authority without a word of blame or without the least reserve.

Ballet [11] has studied the lesions of general paralysis by Nissl's method. He finds the four layers of the cortex still recognizable but much less plain than in normal brains. There are a large number of vessels in the third layer and the subcortical white matter; the nerve cells are less numerous and less distinct under a high power; the arterioles and capillaries are enormously dilated; the adventitial sheath is distended by lymph corpuscles and especially at the bifurcation of the vessels there is a great accumulation of pigment, the white corpuscles accumulate in the interstitial tissue, especially in the neighborhood of the vessels and about the nerve cells. With still higher powers the small white cells with small and highly colored nucleus and little protoplasm could readily be distinguished from the large white cells with abundant protoplasm and a large, irregular, less highly stained nucleus as of the polynuclear leucocytes. The cells themselves tend to lose their triangular form and become oval or round; the protoplasmic prolongations are atrophied and hard to discover; the chromatophilic granulations are for the most part fused or reduced to a sort of fine dust or wholly dissolved. From his study of the pathology Ballet has become convinced that the primary lesions, which are of chief importance and precede the others, are the vascular lesions. He has always found such lesions in all the examinations which he has made, while the lesions of the nerve cells have seemed to him inconstant, variable in degree and subordinated to the alterations in the vessels. Analogous lesions to the arteries have been found in the liver and kidneys. The changes in the cells, however, seem to be of complex pathogeny and to be due less to compression by the proliferation of the neuroglia than to troubles of assimilation, whether due to disturbance of circulation or to the action of toxins in the blood. Ballet, however, recognizes that other observers, notably Binswanger, think that the primary alterations are in the cells, basing their opinions upon examinations made in the early stages of the disease. Ballet, therefore, questions whether the process in general paralysis may not vary according to the cases. In the

[9] Abstract in American Journal of Insanity, January, 1898.
[9] Abstract in Journal of Nervous and Mental Diseases, February, 1898.
[10] Annales Medico-psycholog., January, 1898.
[11] Loc. cit., May, 1898.

liver we note that lesions may vary according to the intensity of the action of the toxins or poisons, the cells in some cases degenerating before the vessels and the connective tissue showing no changes, as in phosphorus poisoning, while in other cases the poisoning is slower and the cells are affected only later. This problem, however, can be settled only by careful histological study. It has been urged as against the syphilitic origin of general paralysis that the lesions of that disease, being diffuse, do not resemble ordinary syphilitic lesions which are circumscribed and in nodular or gummatous form. This, Ballet thinks, is based upon an ignorance of pathology, for, in certain organs, especially the spinal cord, syphilitic lesions often are diffuse. The vascular alterations in general paralysis seem to him to show, in all probability, an infectious origin. The clinical statistics, it is true, are often taken under bad conditions. Their importance becomes more striking when we compare the percentage of syphilis or general paralysis with the percentage in other forms of insanity, such as melancholia. Statistics taken in asylums and in the hospital class are often defective on account of the difficulty of obtaining accurate knowledge of the early history of the patient. In the better class, however, statistics can be more accurate, and Ballet has found that, in almost all cases which he has observed under these conditions, there were specific antecedents. Furthermore, this belief is strengthened by the fact that in women with general paralysis there is almost invariably a previous specific history; and he again emphasizes the fact that in the juvenile cases such a history is almost always to be obtained. In conclusion, he criticises the statistics recently given by Mairet and Vires, who have tried to show that general paralysis was sometimes due to arthritism and who found syphilis in only twenty-three per cent. of their cases. The cases due to uncomplicated arthritism, however, are of questionable diagnosis. Their statistics are based upon asylum cases, where special investigation was not made of physiology, and they have selected only a small portion of the cases under observation.

(To be continued.)

Reports of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

TWELFTH Annual Meeting, held at Cranston's Hotel, West Point, N. Y., June 7 and 8, 1898.

FIRST DAY. — TUESDAY.

The President, DR. J. WILLIAM WHITE, of Philadelphia, in the chair.

DR. ROSWELL PARK, of Buffalo, read a paper on

THE INDICATIONS FOR OPERATION IN RENAL TUBERCULOSIS.

The author stated that when once the conclusion is reached that the kidney is the seat of a tuberculous lesion, the sooner that organ is removed the better, providing only and always that there be in the other kidney or elsewhere no lesion of a similar character which would serve as a contraindication.

It is possible only in exceptional instances to make the diagnosis so early that one can fully rely upon non-surgical measures, meaning thereby the use of drugs and perhaps of tuberculin. It is also most exceptional to meet with a kidney where the lesion is so isolated that one can safely remove but a portion of the organ.

The question as to the general propriety of operation must be first passed upon; then the exact diagnosis should be made, if possible, as to whether one kidney is involved or both. If it can be clearly established that both organs are affected with this disease, the removal of one will be of little benefit, and often rather a detriment. We have then to determine whether there is any serious tuberculous disease elsewhere; especially is this true of the lungs and other inaccessible regions of the body. It is not necessarily so true of lesions in parts which may be safely attacked, as, for instance, lymphatic nodes near the surface, the long bones, the joints and the skin.

When it can be positively established that there is also tubercular disease of the prostate, seminal vesicles and perhaps of the testes, the operation is of doubtful propriety, though sometimes with regard to the latter we may apply the same rule as pertains to lesions of other accessible parts of the body. When the ovaries are diseased, they may possibly be removed at the same time as the kidney; when other deep organs are involved, the operation is most expedient. When the peritoneum is at fault, we may bear in mind the advantage which accrues from opening this cavity, and perhaps may decide to remove the kidney by the peritoneal route.

Operations upon the kidney are of gravity just in proportion to the precariousness of the condition which necessitates them: they should always be so regarded and so represented. To remove the kidney ordinarily is easy and is not a tedious operation, but when it comes to the dissection and separation of the ureter, when its removal is indicated, the measure seriously prolongs the operation — sometimes so much so as to endanger life. What it is best to do, therefore, under these circumstances, should really be left to the decision of the surgeon at the time of the operation, rather than to be carried out upon any preconceived plan.

Partial nephrectomy is contraindicated in theory — although one must confess that it is sometimes apparently successful in practice — because the percentage of cases in which the kidney is the seat of a single or isolated lesion is exceedingly small as compared with that where the lesions are multiple and disseminated. There is certainly reason to think that after the early removal of a tuberculous kidney, the progress of the infection to the rest of the genito-urinary tract must be at least delayed, and is sometimes apparently checked. This is in accordance with the experience of a number of competent observers.

As regards the selection of the operation, the surgeon has the choice between the intra- and extra-peritoneal routes. The intra peritoneal route will be selected principally only in the presence of certain specific indications; it will often be called for in the case of little children, this being the only method by which the enlarged kidney can be safely removed in such instances. Whether the operator shall go through the mesentery or the mesocolon is a matter of minor importance, and must be decided entirely according to the emplacement of the diseased organ.

Of the extra-peritoneal methods, most operators now select the oblique in preference to the lumbar incision, and for reasons which are quite obvious. The beauty of the method with which König's name is now so commonly connected is the extent to which the incision can be carried; if the size of the mass requires it, it may be extended to the external border of the rectus muscle on the affected side. For ease and convenience in almost every respect it certainly takes precedence over every other method, save in the rare instances in which the kidney is easily shelled out after opening the abdomen. Cases occasionally occur in which it will be of advantage to perform the operation in two sittings.

THE OTHER KIDNEY IN NEPHRECTOMY FOR RENAL TUBERCULOSIS.

DR. J. P. BRYSON, of St. Louis, read a paper on this subject. He first reported in detail seven cases of nephrectomy for tuberculosis of the kidney and ureter. In all of these cases the lumbar, or extra-peritoneal, operation was done, and in no instance was the peritoneal cavity entered. The history of two of the cases seemed to indicate that there was danger in merely exposing and handling a kidney which gives little or no evidence, on inspection, of being tuberculous. In one instance the organ, which was found to be displaced, was stripped of its *capsula adiposa* and returned to its proper position without suturing, yet the slight traumatism thus inflicted resulted in lighting up an acute stage of the latent disease, and the formation of para- and intra-nephritic abscesses. In the other case, two kangaroo-tendon sutures were inserted, and a large drainage-tube placed behind the kidney. Increased activity of the disease was quickly noticed. Those instances, Dr. Bryson said, may serve as a warning against a too free employment of exploratory lumbotomy to ascertain the condition of the other kidney, when removal of its fellow is contemplated. Here, as in other and more accessible organs, that is, the prostate and the testicle, a very slight trauma may serve to light into an active and destructive inflammation a long latent and even concealed tuberculous focus, and against this neither the strictest asepsis nor the best skill and celerity of the surgeon can afford an adequate defence.

Dr. Bryson said that in all of his cases, with one exception, the pathological diagnosis depended wholly on the clinical history, the observation of the evolution of the disease for a greater or lesser time and vesical examination, in which the cystoscope played a major part. The presence of a functionating kidney on the opposite side was in these cases based on palpation of the lumbar region, repeated cystoscopic observation of the ureteral orifices, the occasional blocking of the ureteral orifice of the affected side and the urinalysis and urinoscopy during these periods, together with the clinical signs of fever and pain in the loin.

In the first six cases the history, the clinical observations before and after the operation, the examination made of the specimens removed and the progress of the cases pointed to the bladder and urethra and (in the male) the prostate and seminal vesicles as the points primarily attacked. In the seventh case no positive inference regarding the origin of the disease could be drawn, as the whole clinical picture was clouded by anomalous nervous symptoms and morphinism. In five of these cases the disease, beginning in the bladder, travelled upwards along the ureter and infected the kidney, and in three of these, where the opposite organ was almost certainly affected subsequently, absence of disease about the ureteral orifice no less than absence of a ureteral symptomatology seemed to justify the inference of a hematic route of infection for the organ last involved.

In six of his cases the nephrectomy was followed by improvement in elimination done by the remaining kidney, in spite of the fact that in three of those cases the organ showed evidences of being similarly diseased, though to a lesser degree. In one instance this improvement failed to follow nephrotomy and drainage, but promptly appeared and progressed after nephrectomy. In two cases improvement in strength, health and assimilation promptly followed primary nephrectomy.

DR. F. TILDEN BROWN, of New York, said that Dr. Park's paper was entirely in accord with his own experience on the subject of renal tuberculosis. The speaker expressed the opinion that the removal of a kidney with advanced tuberculosis often proved quite satisfactory, even in cases where it was certain that tuberculous foci existed elsewhere in the body.

DR. JAMES BELL, of Montreal, said he was rather surprised at the unanimity with which the several speakers had indorsed the extra-peritoneal route. His own experience in dealing with large kidneys, especially when they were much adherent or of the suppurative variety, had led him to the belief that the abdominal route was the more satisfactory, as it enabled one to determine the condition of the opposite kidney by palpation, and also to ligate the renal vessels with greater care. Dr. Bell said his experience with nephrectomy for renal tuberculosis was very limited, as he had always felt rather timid about removing such kidneys after the disease had advanced to any extent.

DR. SAMUEL ALEXANDER, of New York, said that his experience with total nephrectomy for tuberculosis of the kidney was limited to cases in which the kidney was removed on account of so extensive a degeneration that something had to be done, and in such cases he preferred nephrectomy to nephrotomy. The ultimate prospects in such cases, however, he did not consider very good, for the reason that both kidneys were usually involved. Furthermore, the operation, as a rule, did not relieve the vesical symptoms.

DR. EDWARD L. KEYES, of New York, said the whole question of tuberculosis of the genito-urinary tract and its treatment rested more on diagnostic acumen than upon operative skill; each case must be judged on its own merits as to when we shall act and what we shall do.

DR. PARK, in closing, said he considered it just as proper to attack a tuberculous kidney as he did to attack a tuberculous joint or a fistula-in-ano. We remove a tuberculous kidney in order to get rid of a positive menace to health, sometimes even with the hope of curing the patient, sometimes only to give temporary relief. Whenever possible, nephrectomy should be preferred in these cases to nephrotomy, because by removing the kidney we lessen the danger of dissemination of the disease. As regards the mode of operating, the speaker said that while the abdominal route was simple and even preferable under certain conditions, he did not think it possessed the advantages of the extra-peritoneal route.

DR. BRYSON, in closing, said he had never operated on a kidney for tuberculosis unless he had good reason to believe that a tuberculous focus existed there which was not getting its proper vent. He was perfectly in accord with the views of Tuffier, who holds that an operation should not be done until general treatment has been given a satisfactory trial. The speaker said he had seen some remarkable recoveries from general medication, especially from the use of the hypophosphites, creosote and guaiacol.

SYPHILIS, AND SOME AFFECTIONS WHICH RESEMBLE IT.

DR. J. A. FORDYCE, of New York, read a paper on this subject, and showed numerous photographs illustrating the conditions referred to. He stated that while, as a rule, syphilis reveals itself by clearly defined features and symptoms, cases are not infrequently met with which demand all the experience and knowledge of the expert to determine their true nature. It may be truthfully stated that no other condition, with the possible exception of tuberculosis, presents such widely diversified phenomena and has such important relationship with both internal medicine and surgery. We cannot always appeal with success to the microscope to settle doubtful cases, even where the lesions are accessible to excision. We have fortunately in the therapeutic test a potent means of determining the nature of certain doubtful cases, but even here there are possibilities of error which occasionally confront us.

Dr. Fordyce said that while it was frequently possible to make a diagnosis of syphilis with the appearance of the initial sore, experience had taught him to be conservative in this respect, and he generally advises the patient to await the development of positive signs of constitutional infection before beginning the use of mercury.

Error is more apt to arise in the diagnosis of extragenital chancres, for the possibility of primary syphilis away from the genital organs is not always borne in mind by the practitioner. The speaker said he personally knew of several instances in which the primary sore of the lip and face was excised under the mistaken diagnosis of epithelioma, the subsequent development of constitutional symptoms rendering the character of the disease unmistakable.

In the diagnosis of the secondary stage of syphilis, the acute exanthemata, drug eruptions and a multitude of non-venereal eruptions may confuse the physician if all the concomitant symptoms are not given proper consideration. The speaker said he recalled one instance where a patient with a small-pox eruption was admitted to one of our large city hospitals with the erroneous diagnosis of syphilis. The mistake was not discovered until the death of the patient and the outbreak of variola among a number of the exposed patients and hospital attendants.

The iodides in susceptible individuals sometimes produce pustular and ulcerative eruptions which simulate very closely the rupial lesions in syphilis, and as the iodides are employed to combat such an eruption, it is sometimes difficult to distinguish the one from the other.

In the so-called tertiary stage of syphilis the disease is again prone to localize itself, and can, in the skin, imitate tuberculous processes or malignant disease; in the subcutaneous tissues, new growths of malignant nature; in bone, tuberculosis or sarcoma; in the testes, tuberculosis or other neoplasms. Syphilis of the tongue is one of the most common antecedents of cancer of this organ, it being sometimes difficult to determine when syphilis ceases and when epithelioma begins.

CASES OF RECURRENCE OF STONE IN THE BLADDER.

DR. ARTHUR T. CABOT, of Boston, read a paper on this subject. His observations were based on a series of 135 operations which he had done for stone upon 119 patients. In this series there were 115 litholapaxies, with four deaths; thirteen suprapubic lithotomies with four deaths; two median lithotomies, with one death, and two vaginal lithotomies, with one death. The series only included cases of formal operation under anesthesia, and took no note of many instances in which a crushing or pumping operation had been done, with or without cocaine, for the removal of small recurrent stones or for retained fragments.

In the above series, there were two cases where a uric-acid stone re-formed in consequence of the persistence of the diathesis that led to the original formation. On one of these patients he had operated twice, and on the other three times. The series included nineteen instances in which a phosphatic stone appeared some months or years after the removal of a primary stone. In two or three instances the primary stone was a uric-acid calculus; in all the other cases it was phosphatic. In six of these cases the previous operation had been done by some other operator.

This recurrence of a phosphatic stone, Dr. Cabot said, may be due to the persistently alkaline condition of the urine, but it is much more common as the result of some local condition. In two or three of the cases the recurrence might perhaps be regarded as the result of an incomplete operation, leaving a fragment to serve as a nucleus for a new stone. In two cases, sacculated stones which lay concealed in pockets in the vesical wall gave rise to repeated stone formation in the bladder cavity. Finally, it is notorious that tumors and granulating surfaces within the bladder are prone to be incrusted with salts. The crystals that exist in the urine do not tend to cobere and form a stone excepting in the presence of albuminous material. The constant reappearance of a phosphatic stone in the bladder usually indicates the existence of some local causes which should be sought and removed. The suprapubic route affords the best opportunity for inspection and for the operative treatment of any condition found.

DR. WILLIAM K. OTIS, of New York, said that he also was in favor of resorting to litholapaxy whenever possible, because of the lower mortality of the operation and because the subsequent discomfort to the patient was much less than after any of the other operations for stone; at the same time, it did not prevent or interfere with the performance of any future operation which might be demanded. In connection with this subject, Dr. Otis exhibited a calculus which he had removed from the bladder of a man thirty-eight years old; the nucleus of the stone was a piece of chewing-gum which the man had introduced into his urethea about four years previous to the operation.

DR. KEYES said the continual recurrence of phosphatic stone was easily understood in those cases where there was some obstructive condition, and the toilet of the bladder was not properly effected.

A MODIFICATION OF THE TECHNIQUE OF THE OPERATION OF PERINEAL SECTION, WITH A VIEW TO SIMPLIFYING THE PROCESS; NEW INSTRUMENTS DESCRIBED; REPORT OF ONE HUNDRED AND SIXTEEN CASES,

by Dr. Orville Horwitz, of Philadelphia.

The author, in his paper, confined himself to a consideration of but two conditions: (1) where the membranous urethra is the seat of stricture of so small a calibre that a filiform bougie only can be passed, and (2) where the passage of any instrument is impossible, and the bladder must be reached without the aid of a guide.

Dr. Horwitz described his operation of perineal section, which was a modification of that known as the "Wheelhouse" operation, simplified by the use of a perineal staff of his own contrivance. This instrument consisted of two blades, in close approximation, which together form a smooth staff, with a thumb-screw at one end by means of which the blades may be readily separated. The instrument works upon the same principle as the Otis dilating urethrotome. The distal end of the staff terminates in a rounded nut, which can be removed and replaced by a whip filiform. The filiform is employed when it is not possible to insinuate the whip bougie, so it will be observed that the staff can be used with either an ordinary filiform or with a whip bougie, or even without a guide.

Dr. George K. Swinburne, of New York, reported in detail

A CASE OF CYSTITIS DUE TO COLON BACILLUS, COMPLICATED BY PHOSPHATIC CALCULI.

Dr. J. R. Hayden, of New York, read the following paper on

EXTERNAL URETHROTOMY.

The following points in technique were emphasized by Dr. Hayden:

(1) *Division of the Stricture.* — All of the stricture tissue should be completely divided in the median line, not only on the floor but also on the roof of the canal. In order to ascertain whether the division of the tissues has been complete, the index-finger, with its palmar surface directed upwards, should be passed into the perineal wound and down to healthy urethra, well in front of the stricture, and then backward on the roof of the canal into the bladder; this will readily detect any bands or masses which have not been thoroughly divided. At the same time the dilatation of the posterior urethra with the finger prevents in a great measure post-operative tenesmus. The perineal operation being completed, a full-sized sound should be passed from the meatus into the bladder to ascertain that the whole length of the urethra is clear; if obstructions exist, they may be removed by meatotomy, internal urethrotomy or post-operative dilatation.

(2) *Bladder Drainage.* — This the author regarded as a most important measure after this operation. He advised the use of a large perineal tube, which keeps the bladder well drained, dilates the posterior urethra and to a certain extent the divided stricture, and is an ever-ready route for bladder irrigations, which are so essential in the treatment of urethro-cystitis. In from two to four days after the operation the tube is taken out, washed and replaced; it is removed permanently on the fifth to seventh day, when the patient is allowed to be up and about. In the majority of the cases all the urine is passed by the urethra in about one week after the removal of the tube, but in some the urethral wound remains patulous for several weeks.

(3) *Post-Operative Dilatation.* — When the tube is first taken out for cleaning, a medium-sized sound is passed into the bladder and held there for about a minute: this is repeated every second or third day until the perineal wound has cicatrized, and the urethra takes a No. 28 to 30 (French) sound with ease, according to the case, when the intervals are made longer.

(4) *Treatment of the Perineal Wound.* — The perineal wound should be personally inspected every day to see that it is healing solidly from the bottom by firm, healthy granulations, and is not allowed to bridge over in places, or fill up with pale, flabby tissue. This can be prevented by running the finger firmly through the bottom of the wound from end to end. Exuberant granulations are removed by the nitrate of silver stick or curved scissors and the wound dressed lightly with gauze.

A CONSIDERATION OF THE URINARY DISTANCE AS A DIAGNOSTIC FACTOR OF PROSTATIC HYPERTROPHY.

Dr. E. L. Keyes, of New York, read a paper with this title. The following were his conclusions:

(1) The urinary distance varies in the adult healthy male from something over six inches to something under ten inches, but may be honestly averaged at eight inches.

(2) The shorter lengths are found in short individuals having a small penis. A large organ naturally contains a long urethra, and this is most certainly the case if the individual be tall.

(3) The age of the individual seems to cause a very moderate increase in the urethral length, irrespective of disease.

(4) In prostatic hypertrophy the urinary distance averages more than eight inches, and is longer in cases of peripheral general hypertrophy than where the enlargement is median or in cases of bar.

(5) In a doubtful case, a consideration of the urinary distance may become an important element in the diagnosis.

Dr. Eugene Fuller, of New York, suggested that measurements of the urinary distance would be more valuable, for diagnostic purposes, if we disregarded absolutely the penile portion of the urethra, and confined ourselves to measuring the distance between the point where the beak of the instrument enters the triangular ligament and the point where urine begins to flow. This method would give us a set of measurements which would prove less confusing than where the entire length of the urethra was taken. In old men, where the muscles of the penis have lost their tone and the organ possesses little erectile power, it probably becomes longer than in young men.

Dr. Cabot said we occasionally find cases where it is extremely difficult, by rectal touch, to make out with any degree of accuracy the size of the prostate. He reported a striking example of this which had recently come under his observation, where a supposed hypertrophied prostate proved to be a small bladder, with thickened walls.

Dr. W. N. Wishard, of Indianapolis, called at-

tention to the fact that the quantity of residual urine varied in an individual case, depending on the amount of prostatic congestion, and that this would produce more or less variation in the urinary distance.

DR. BRYSON said that in certain cases of prostatic overgrowth associated with anterior and lateral malformation of the organ, the prostate may be very large and yet the urinary distance may be comparatively small.

DR. KEYES, in closing, said that the method of measuring the urinary distance in prostatics with the soft catheter was reasonably accurate and did not inflict any injury on the patient.

RECOVERY, WITH RESTORATION OF THE VESICAL FUNCTION FOLLOWING TOTAL EXTIRPATION OF THE PROSTATE AND RESECTION OF THE BLADDER FOR MALIGNANT DISEASE.

DR. EUGENE FULLER, of New York, read a paper with this title, and reported in detail two cases in which he had performed this operation with success. He stated that malignant disease of the prostate is generally considered to be an affection beyond the realm of direct surgical work. Most authors state that although on a number of occasions attempts to radically extirpate the disease have been made, yet the results have been so bad or indifferent as to hardly warrant further effort in that direction. The course of treatment ordinarily laid down is to do practically nothing until the disease blocks the vesical outlet, and then to perform suprapubic cystotomy, establish a permanent suprapubic urinary fistula, and await the patient's death, which is usually due to a blocking of the ureters or bowel, or through sepsis, or through the metastatic involvement of other organs, especially the liver.

Dr. Fuller said there was no doubt that radical surgical interference was contraindicated after the disease had become extensive enough to involve the rectal wall, the post-peritoneal lymphatics, the seminal vesicles or the posterior bladder wall beyond the trigonum. If, however, such was not the case, then an attempt should be made to remove the structures which are the seat of the disease, unless perhaps the subject be a child, for in children malignant disease in this region is so rapid in its progress that no radical operation is liable to do more than very temporarily stay its progress.

(To be continued.)

ANNUAL MEETING AND DINNER OF THE BOSTON CITY HOSPITAL CLUB, FEBRUARY 2, 1898.

GEO. W. GAY, M.D., PRESIDENT.

(Concluded from No. 17, p. 421.)

YOU have chosen to be a doctor. Your education, your training and your devotion to your profession are your capital. If you are wise, you will regard any surplus income from that capital as a trust, to be invested only as you would invest trust funds from any other source.

The first principle should be absolute safety, even although the rate of interest be small. If you are not willing now to adopt this policy, my advice would be to retire from your profession and go down-town and join the already too large army of men whose lives are given up to speculation. This spirit of speculation abroad — this desire to get something for nothing — is the bane of our business world. It undermines and rots the characters and is a curse to the lives of men of affairs who engage in it. What a blight it must be to one in your profession. How can he, whose mind is on the ticker, be a safe guide at the bedside of the sick?

You ask, What is a safe investment? Perhaps it would be easier to say what is not. As a rule, a loan to your friends, without ample security, is not safe. Even with security, a loan of your first earned money to a friend, to be used in business, is unwise.

If it is little you had better put it in a savings bank and here you can, to advantage, exercise good judgment by studying the reports of the savings banks, examine the list of managers and put your money in the bank that is the strongest and safest. Happily, nearly all our banks in Massachusetts are entirely safe.

But the best investment you can make is to buy a home (of course, every good doctor is married or will be, as soon as he can afford it). If he isn't, he needs a home. Take time to look over the field carefully. Probably you will think it better to buy rather than to build. Bear in mind, however, that bricks and mortar depreciate in value from the day they are put up, while in growing communities land appreciates.

Therefore, get a good bit of land; get it where you want it and where you can put up better buildings when you have earned more money. While, as a rule, a debt is to be avoided, you will make no mistake in buying a home as soon as you have accumulated enough to make a payment so respectable that you can buy at the lowest price. Secure the balance by mortgage. You will then have a place to safely put every dollar you can spare until your home is paid for, and by this time the increased value of the good bit of land has probably more than offset the shrinkage in your buildings, so that your investment has been not only safe but profitable. Besides, you are a real estate owner and taxpayer in your town or city, which fact always gives a feeling of permanency in regard to professional men as well as others. It is needless to say anything further on this matter, for by this time your business habits will be formed. Your trust investments are accumulating, and will continue to do so.

I am a firm believer in the future of Boston and New England, and I am quite sure your money will be as profitably, and much more safely, invested at home than if sent to the North, South, East or West. We have in the past spread our savings broadcast all over the country; we have poured out our money to build railroads through sections where the inhabitants are miles apart, simply because some glib promoter could sell more bonds per mile than the whole cost of the road, and we bought not only the bonds but the stock, to our sorrow. Our hard earnings have been buried in every State and Territory west of the Mississippi, even down in Old Mexico. We have sown too freely where we shall never reap. Is it any wonder that some have feared that New England was losing in the race? Now, let us begin to invest at home. Develop your own town or city, thus improving the possibilities of your own career, besides earning for yourselves a right to feel a patriotic pride in being a part of the growth and prosperity of your own section.

I trust I shall not be understood to lay too much

stress on the money-making possibilities of life. Only a very low order of talent is required simply to accumulate money. Any healthy human clod can do it, if he will. It is only a question of working and saving, steadily persisted in.

But how to make the most of your opportunities, using your talents, your strength, your energy, so as to bring the greatest return, not to yourself only, but to all with whom you come in contact — that is the problem. I do not agree with the doctrine that business is simply a struggle where every man tries to down the other. The greatest and most enduring successes will be made by those who aim to win by rendering equivalent service and building up rather than tearing down. So I would subordinate all business action to the demands of good citizenship, to the legitimate claims of family and friends. Yet no man can long help his friends financially who does not keep himself strong by a strict adherence to sound principles in the conduct of his own affairs. If he departs from them, he becomes also helpless.

I fear I have overtaxed your patience. I've told you nothing you did not know before. My apology is that I was instructed to talk business and in that science, there have been no new discoveries in my generation.

The President: How often do we hear the remark made, that this is a great country. Were some of you asked to locate the central meridian, or central point between its extreme eastern and western boundaries, I will venture to say that you would place it as I did, in the vicinity of the Rocky Mountains. I have it upon the authority of Hon. Charles S. Hamlin, late Assistant Secretary of the Treasury, that it lies in the Pacific Ocean about 250 miles west of San Francisco. He also is my authority for the statement that in June in Summer Solstice the sun is shining for twenty minutes at Eastport, Me., before it has set on Atton Island, which is our most western boundary in the Northern Pacific Ocean.

The time was not so very long ago, in fact within the memory of some of the antiques present (you may know us by the innocent and guileless expression on our faces) when Ohio was pretty far west. It is so no longer. In fact that great State is so near to us, that we don't hesitate to invite one of their leading surgeons to run over to Boston, and read a paper before one of our medical societies, which you will be happy to know he is going to do to-morrow evening. We are fortunate in having this gentleman with us to-night, and I have asked him to say a few words for the profession of the Great Central West, an empire in itself. I have the pleasure of introducing Dr. Dudley P. Allen, of Cleveland.

Dr. Dudley P. Allen: It is a great pleasure for me to be with you here to-night, and for two reasons: first, because I esteem it an honor thus to partake as a guest of your hospitality, and second, because of the final accomplishment of my journey hither through almost impassable snow. I have travelled partly by train, partly on foot, and partly on snowshoes. I have almost cause to feel like the old woodsman of Michigan who was visited by a Bostonian. The old man said, "Neighbor, where did you come from?" "Boston," was the reply. "Where is that?" said the woodsman. On being told that it was way down in New England, he said, "But don't you hate to live so far away?" Would you pardon me for sympathizing in a similar manner with you? My journey hither was not wholly unfraught with benefits to the profession of Boston. The only occupant of the sleeping-car besides myself was a very attractive and cultured young lady. Through sympathy for her loneliness, and I may add, my own, I helped her over snow-drifts, and in the absence of a dining-car foraged for provisions. As we approached our journey's end, she said to me bashfully: "Do you know where Harrison Avenue is?" I said I did. She then inquired if I knew where the City Hospital was and I confessed that I had heard of it. She then volunteered the information that she came from Canada and was on her way to Boston to become a nurse. I assured her that the career was a worthy one and sought to comfort her by saying that she would soon feel less of a stranger in the United States, since we intended to annex Canada. This proposition did not meet a cordial response, but her reproachful glance was less keen when I ventured to interpose that should this project fail I had no hesitation in prophesying that we should doubtless succeed in annexing certain small and individual sections of it. Having reached the station I secured for her a cab, found her baggage and started her on her way in safety. Fancy my feelings on being unable for the space of one-half hour in this great metropolis to find for myself a second cab. It was on this account that I was late in arriving at this dinner and your Chairman having introduced a guest from Greater New York as from the second city of the world, the circumstance of the cab has made me wonder if he did not desire to infer that Cleveland was the first. Certainly, gentlemen, we have more than one cab to meet express trains at our stations.

I am asked to respond to the toast, "The Medical Profession of the Great Middle West." Before doing so it may be well for me to give you something of the geography of that section, since there prevails in the West an impression that Bostonians rarely know which is most remote, Chicago, Omaha or Cleveland. For your information I will say that Cleveland is about fifty miles west of Omaha. When the kings of England were granting charters to their colonies in North America, the northern and southern boundaries were somewhat accurately fixed. The western boundaries, however, wandered off indefinitely towards the setting sun. At the close of the Revolutionary War, to satisfy the western pretensions of Connecticut, that State was granted a strip of land about seventy miles wide and one hundred and fifty miles long, stretching across what is now Northern Ohio. Being reserved for Connecticut, and placed under the control of the Connecticut Land Company, this region received the name of the Western Reserve, and it is as a specimen of western reserve that I speak before you here to-night, of which Mr. Evarts, when Secretary of State, on being importuned in behalf of an office-seeker from this section of Ohio, said he had heard a great deal of the western reserve, but never saw any of it.

The chief city of the Western Reserve is that of Cleveland, and I shall say something of it, since the region has a somewhat peculiar history. The early settlers of this region came chiefly from Connecticut and Western Massachusetts. As they journeyed slowly westward with their ox-teams they passed by regions equally fertile, and farms no more expensive than those to which they were going. Having purchased their homes, however, from the Connecticut Land Company before they left New England, they pressed onward, and thus in the wilderness, separated by a long journey from the population of the Atlantic sea-board, they established a new community, having

all the best characteristics which have marked New England. I question, gentlemen, if there is among you here to-night, a man of purer New England blood than myself, or one more acquainted with her customs. In the old village church I used to go to morning service at 10 o'clock, to Sunday-school at 12 M.; to afternoon service at 1 P. M., and to prayer meeting "at early candle lighting." Surrounding the church was the "graveyard," and close by was the Academy, presided over by some recent college graduate renowned for scholarship. The Reserve remained there an isolated community until the introduction of rapid transit by the completion of the Erie Canal. Marked by intelligence, character and energy, the Reserve has herself become the mother of new colonies and has through her children stamped her impress upon much that is best in Southern Michigan, Northern Illinois, Southern Wisconsin, Iowa and Minnesota. That which has characterized her in citizenship has characterized her also in medicine. In an early day the profession were men of character and high purpose, but were subjected to those disadvantages and hardships incident to pioneer life. From my grandfather, one of the earliest physicians of Ohio, and the first to be appointed Surgeon of the Western Army in the War of 1812, I heard many anecdotes, until my childish fancy scarcely distinguished between Daniel Boone, Natty Bumpo, and many of the early physicians. One instance alone will serve to illustrate early experiences. Obliged to cross a stream, the doctor, removing his clothing, had fastened it to his horse's neck that it might not get wet. Swimming with the horse across the river, he attempted to pull his horse up the steep bank, when the bridle slipped off and the horse and clothing retreated rapidly to the other shore, leaving the doctor, clad only in the garb of Eden.

Early in the forties medical schools were established so that professional education were much benefited. Among the teachers of that period was a Dr. Delamater, who came from Western Massachusetts. As a man of experience, broad scholarship, sound judgment and professional reputation he had but few equals in the United States, and among the older practitioners, one may still hear him quoted as an authority. Associated with him was a surgeon named Ackley. Of rough exterior and brusque of speech, he was a man of undoubted ability. One of his assistants told me that not long after 1840, he saw Dr. Ackley make a complete vaginal extirpation of the uterus. The Reserve is as full of stories of Ackley as Edinburgh is of Syme. They are of every sort. Once while hunting, a German on the other side of the river complained to the doctor, that the latter's dog was retrieving the ducks which he shot. The doctor said he could not prevent this, but the German should have his ducks. Shortly afterwards, acting on a threat, the German filled the dog full of shot, whereupon Ackley whirled and filled the German full of duck shot. The next day the surgeon had the sweet satisfaction of seeing the German, who had travelled forty miles, enter his office, and of picking from his back the duck shot and charging for it a good round fee. One more incident will suffice. Dr. Ackley had secured a gift of twenty thousand dollars, with which to erect a medical college, and had deposited it in a bank for safe keeping. Immediately the bank became insolvent and closed its doors. The doctor demanded the money and was refused. He secured a crowbar, chisel and a sledge-hammer, and such was his reputation that no man ventured to interpose. The doctor demolished the vault, secured his twenty thousand dollars, and with this sum erected the building which has become the Medical Department of Western Reserve University to-day.

The growth of medical education in the West has been much in the same lines as in the East. While we cannot lay claim to equal what you have done, or expect to overtake you, we still have done our utmost. I can speak more authoritatively of the Medical Department of Western Reserve University than of any other. The course of study has been gradually extended until it now occupies four years of between eight and nine months each year. The requirements for admission are by no means nominal and the Faculty and Trustees have voted that beginning with the year 1901 no one shall be admitted to the study of medicine who has not completed his junior year in a college of good standing. Men in the academic department of the University are now permitted in the senior year to elect nine out of fifteen hours per week in the medical department, thus enabling them to complete the combined eight years' academic and medical courses in seven years. Our medical building was constructed at a cost of $250,000, on plans suggested by your celebrated architect, Richardson, and is a worthy product of his genius. During the last year a four-story laboratory building has been added so that our facilities for laboratory work are very extensive. The New Lakeside Hospital, which has just been completed at a cost of about $575,000, is closely associated with the medical school, giving every facility for clinical instruction. It has a capacity of nearly three hundred beds and space sufficient for its erection of buildings to double the present numbers. It has a large amphitheatre with all that pertains to it, and a dispensary department with thirty-two rooms for examining and treating patients in addition to a waiting-room large enough to accommodate four hundred patients at one time. There is a large building of three stories solely for pathological investigations accommodating each department of the hospital. To describe one clinical department as an example of all will suffice. There is a single surgeon who has charge of the entire department. He has three private operating-rooms with others for storing, preparing and sterilizing dressings, and storage of instruments. He has four assistants, three of them advancing through externeship to the positions of second and first assistants, the period of service being eighteen months. Over these is a resident surgeon who must previously have had hospital training and considerable experience. He resides in the hospital, and receives a salary sufficient for his living. He must be a man on whom the chief can rely to relieve him of much responsibility and he may remain two, four or more years in the hospital according to the discretion of the visiting surgeon. The visiting surgeon is also director of the surgical department of the dispensary, nominating the surgeon in charge of this service. The man so nominated serves as alternate to the visiting surgeon during the latter's absence, performing the operations upon hospital patients and giving the public clinics. In addition to Lakeside Hospital the medical school has two other hospitals under its direction. The clinical material at the disposal of the school thus amounts during the year to nearly four hundred beds and for

half of each school year this is increased to nearly six hundred beds. I have spoken thus in detail of the Medical Department of Western Reserve University in order to give you in as few words as possible an idea of what we are doing. We hope to be worthy of your good will and to deserve the support of the constituency which surrounds us, undertaking as we do to place the teaching of medicine in the Middle West upon an advanced basis. As I have already said, however, we do not equal what is done by Harvard University nor can we expect to overtake you, advancing rapidly as you are doing.

Years ago when I had finished college my health prevented for a time further study. Becoming a cowboy and following my cattle with no companions save my horse and my dog, I had ample opportunity to consider whether I should seek my fortunes in the West or come East and study a profession. I was not good enough to make a preacher, nor had I the kind of intellect which should be the possession of an able counsellor-at-law, nor the esthetic sense which is so essential to an architect or an artist. Nothing remained for me but to follow in the line of my inheritance and become a doctor. I decided to come home, and after careful inquiry as to the best school in the United States to study medicine, as a result of my investigations I selected Harvard and I have always been glad that I did so, and as I believed then, so I believe to-day that Harvard Medical School offers the best advantages for the study of medicine of any school in the United States. Honoring that great institution as I do, may I be permitted to express one regret, and that is, that Harvard Medical School and the Profession of Boston have not made their influence as widely felt as they are by opportunity and achievement entitled to do. You have in too great a degree been sectional. You have lighted your candle and put it under a bushel. You should have followed in the footsteps of your sires, who, lighting a beacon and placing it on yonder hill, spoke as it were in tongues of flames to the downtrodden everywhere. Their worthy sons emulating their example have on this spot suspended 'twixt heaven and earth a gilded dome, which, while marking a safe haven to the toilers of the sea, flashes its reflected brightness out on the western hills — who shall say how far? Thus you with all your inherited benefits, personal acquisitions and achievements should make Harvard Medical School and your great hospitals a boon, a blessing, a benediction to students from every State of the Union, to the profession of medicine throughout this entire republic, to the sick and suffering everywhere.

As I return to Boston and sit as an invited guest with the Alumni of this hospital it is with pleasure I look about me on faces of friends in whose achievements I take great personal pride and whose successes gave me untold pleasure. It is with pain, however, I mark the absence of your senior surgeon, Dr. Cheever, by whose teachings we have all profited. As I recall his words of instruction, the product of vast experience and great wisdom, given to us with unrivalled elegance and I might well add eloquence, there comes to my mind the words of Ruskin with which he introduced his "Modern Painters." After saying he would not by a single word detract from the immortal genius of Leonardo da Vinci, Michael Angelo or Raphael, and then calling attention to the great works of Turner to which adequate recognition had been denied, he says: "Let it not displease men that they are called amid the tumult and bustle of this busy life to listen for the few voices and watch for the few lamps which God hath tuned and lighted to charm and guide them that they may not by their sweetness, by their silence nor their light be their decoy." Thus in the presence of this assembly, every man of whom holds in remembrance his words of wisdom, I would pay this tribute. But I must not detain you longer. I cannot sit down, however, without expressing again my appreciation of your hospitality, and bringing to Harvard Medical School, the great Boston City Hospital and its illustrious Alumni, first in art, first in science and first in charity, from the medical profession of the great Middle West a greeting and their wishes for your prosperity.

The President: Every man who graduates from the surgical department of the City Hospital carries away a pocket case of surgical instruments, which he owes to the thoughtful generosity of the surgical father of all of us. You all know of the sad bereavement which befell him in the past summer, that prevents his being with us to-night. But I hope, gentlemen, that it will be a long time before this club forgets to pay its respects to one of its best friends and benefactors, and I ask you to rise in your seats and drink of the loving-cup to the health, happiness and long life of our good friend, Dr. Cheever.

Recent Literature.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., LL.D., F.R.C.P., Emeritus Professor of Obstetric Medicine in King's College, London. Examiner in Midwifery to the Universities of Cambridge and London. Seventh American, from the Ninth English Edition. In one octavo volume of 700 pages, with 207 engravings and 7 full-page plates. Philadelphia and New York: Lea Brothers & Co.

It is unnecessary to say anything in praise of this well-known standard obstetrical work. Twenty-two years have elapsed since the first edition was published, and with this edition there has been a thorough revision of the text, many parts of which have been completely rewritten. Two new plates and seventeen woodcuts have been added, while several illustrations which seemed obsolete or unsatisfactory have been suppressed.

A Text-Book of Practical Therapeutics. With especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin and Barton C. Hirst. New (seventh) edition. In one octavo volume of 770 pages, illustrated. Philadelphia and New York: Lea Brothers & Co. 1898.

This new (seventh) edition of Dr. Hare's Practical Therapeutics has been carefully revised and brought up to date. The text has been made to conform not only, as previously, to the Pharmacopœia of the United States, but also to the British Pharmacopœia, of 1898. The rapidly succeeding (annual) editions plainly attest the popularity of this text-book.

THE BOSTON

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THE BACTERIOLOGY OF ACUTE RHEUMATISM.

A NOTICEABLE contribution to the bacteriology of acute rheumatism has been made by Singer.[1] He regards it as an infectious disease, classing it alongside of other diseases whose infectious nature is known or admitted, such as influenza, typhoid fever and scarlatina. He considers as of some significance the occasional appearance of acute rheumatism epidemically, the transmission of the disease to the fetus by contagion, as in Jaccoud's cases, and the clinical course, so markedly resembling an infectious disease. He looks upon acute rheumatism as a hemic infection belonging to the same category as the pseudo-rheumatisms, and sometimes confounded with them. It is a general disease well indicated by the term rheumatic fever, which is a better term than rheumatic arthritis or articular rheumatism, as the symptom arthritis may be absent, or only come on after such other accidents as angina, endocarditis and erythema.

The affiliation of rheumatism with pyemia, he says, is very strict, and is manifested by the existence of arthrites supervening by irregular attacks, by the intermittent febrile condition, the profuse sweats, the icterus, the peptonuria, the cardiac and ocular complications, the cutaneous manifestations. Rheumatism belongs to the family of erysipelas, which sometimes alternates with it; of osteomyelitis which produces peri-articular edema; of the cryptogenetic septicopyemia of Von Leube, which so resembles acute rheumatism that the differential diagnosis is often impossible during life. Puerperal infection also offers many points of resemblance to acute rheumatism. Lastly, most of the pseudo-rheumatisms are due to pyogenic microbes, and especially blennorrhagic arthritis, which often resembles true rheumatism, and which has been considered a product of the metastasis of gonococci. For all these reasons, Singer insists that the pathogenic agent of rheumatism may belong to the group of pyogens. He thinks that pathologists have erred in attributing only a secondary importance to results already obtained, which all show that there exist pyogenic micrococci in the blood, the urine, the inflamed joints, the endocardial vegetations. These bacteria have not for their sole effect the production of pus, for they may give rise to a sero-fibrinous exudate; on the other hand, rheumatism is sometimes complicated with suppuration of the joints. Singer protests that to exclude from the category of acute rheumatism all these cases where known pathogenic bacteria are found is unscientific, and will, if persevered in, eventually leave nothing that we can call rheumatism.

This writer, then, believes himself justified in considering as the primary pathogenic agents of acute rheumatism the pyogenic micrococci which he has obtained in the living patient from the blood, urine, and intra-articular exudate, and from the lesions supervening as complications (erythema, endocarditis, etc.).

We have not space for a detail of Singer's bacteriological examinations; suffice it to say that in only a fraction of the cases was any positive result obtained. The bacteria most constantly found were the staphylococcus pyogenes albus, the streptococcus conglomeratus, and pyogenes. In only two out of twenty-four patients did the intra-articular exudate show the golden staphylococci. Singer affirms that the micrococcus may exist in the synovial membrane and the tissues around the joint without being present in the exudate; it secretes toxins which cause the swelling. He says that his showing is as good as that of the pseudo-rheumatisms, in fact, in blennorrhagic arthritis the examination of the exudate does not give more frequent positive results.

The bacteriuria of rheumatism is of some interest, the elimination of bacteria by the urine, however, is variable and inconstant. He has examined 692 times the urine of 85 patients; he obtained a positive result 136 times in 49 patients. He found 93 times the staphylococcus pyogenes albus, 14 times the staphylococcus pyogenes aureus, 13 times the staphylococcus cereus albus, 20 times the streptococcus conglomeratus, 15 times the streptococcus pyogenes, three times the bacterium coli.

The above brief synopsis of Singer's work does not throw much light on this vexed question of etiology. The number of authorities who have found microbes in the exudates and tissues in acute rheumatism is now considerable, but the medical world is not yet convinced that rheumatism is a bacterial disease, and awaits further demonstrations.

It may be remembered in this connection that ten years ago Guttman cultivated in gelatine an abundance of cocci, described as the staphylococcus aureus, taken from the knee-joint and pericardial sac of a patient said to have died of multiple acute articular rheumatism. As there were abscesses and purulent infiltrations in the kidneys and elsewhere, it is not clear why the case was reported as one of rheumatism instead of pyemia. The same year in which Gutt-

[1] Ætiologie und Klinik des acuten Gelenk-rheumatismus.

man reported his case (1887) Dr. Alfred Maathe, of Stanley, England, reported the finding of both micrococci and bacilli in the blood and serous effusions accompanying acute and chronic rheumatism. The same year, Popon obtained micrococci from the blood of a person affected with acute rheumatism, propagated them by cultivation, and by inoculating rabbits claimed to produce well-characterized rheumatism in the animals, in whose blood and synovial fluid he found the same cocci.[2] Still later, Cornel and Babès found an elongated bacillus and a micrococcus in the exudate of a rheumatic patient; Klebs detected micrococci in the exudate in rheumatic endocarditis, and in three cases observed by Petrone, the serum obtained from the knee-joint in a case of acute rheumatism showed microbes similar to those previously described by Klebs. Dr. N. S. Davis in commenting on these observations judiciously remarks that it is probable that the serous effusions into the articulations and the blood of persons affected with acute articular rheumatism contains a variety of microbes. But whether any one of these microbes possesses specific etiological relations to the rheumatic disease, or whether they are identical with those found in the fluids and exudations connected with almost every variety of inflammation, cannot be decided till we have the results of a much more extended and varied series of investigations.

In 1892 Herman Sahli, of Berne, found the golden staphylococcus in the synovial and pericardial membranes in a typical case of acute rheumatism, and inferred that this microbe was the pathogenic agent of the disease. The same year Grün, of Putney, discovered minute cocci in the blood in acute rheumatism, and Raymond and Netter, of Paris, reported cases of infectious pseudo-rheumatism in which the streptococcus pyogenes was found abundantly in the affected joints. Spruyt, in an elaborate article published in a Belgian medical journal in 1894, refers ordinary rheumatic attacks to the more common causes, and limits the influence of bacteria to such cases as are associated with other well-known infectious diseases, as gonorrhea and diphtheria.

Perhaps among the more important of the bacteriological studies of the past year on acute rheumatism, we may reckon the researches of Achalme and Thiroloix, as published in the *Annales de l'Institut Pasteur*, November 1897. In two well-marked cases, in the one of which the patient succumbed to cerebral rheumatism, in the other to endocarditis, and in six patients who survived an attack of acute articular rheumatism Achalme found in the liquid of the joints, in the endocardium, etc., an anaërobic bacillus, existing in great abundance and easily cultivated. In six other typical cases M. Thiroloix found the same microbe, in two cases only associated with micrococci. This bacterium may be cultivated in milk, or milk and bouillon, and is best detected after cultivating in this medium a little of the suspected liquid. The bacillus stains well with anilin, and bears a marked resemblance to the bacillus anthracis. It is a mobile bacterium; its movements and growth are speedily interrupted by a couple of drops of a weak solution of sodium salicylate.

This microbe produces in animals the characteristic lesions. The guinea-pig, which is peculiarly sensitive, dies in from twenty to thirty-six hours. By inoculation of the thigh, there is formed a sac containing a reddish serosity; all the rest of the subcutaneous cellular tissue is infiltrated with a sanguinolent and gelatinous edema. Inoculation near the thoracic wall often causes a pleuritic sanguinolent exudation. Injection of a culture under the skin of a rabbit's ear produces a considerable edema of that organ, which becomes cold, and the exudate, which is a transparent serosity, contains the bacillus in abundance. If large quantities of the culture are injected, the animal dies in a few days of septicemia with intense congestion of the thoracic viscera. Injection in this animal of serum from inoculated guinea-pigs causes endocardial and pleuritic lesions resembling the lesions of visceral rheumatism in man. The bacillus of acute rheumatism readily associates with other microbes, as the streptococcus, and favors their entrance into the organism.[3]

Achalme is very confident that this is the pathogenic agent of acute rheumatism, and this claim is being tested by competent bacteriologists on the Continent.

At a meeting of the Société de Biologie, January 29, 1898, M. Triboulet stated that in eleven cases of acute rheumatism he had found a peculiar cocco-bacillus, and Apert said that in one patient he had recently detected the same microbe. Like Thiroloix's and Achalme's bacillus it is cultivated in milk which it coagulates by formation of lactic acid. Triboulet has produced pericarditis and endocarditis in animals with this microbe, but no true arthritic affections. Charrin, in commenting, said that it is not enough to obtain endocarditis by inoculating an animal with a microbe taken from a rheumatic patient; one is not warranted in affirming that the microbe is the pathogenic agent of rheumatism. Nor are experimenters warranted in formulating this conclusion, even if swelling of the joints is produced, seeing that many bacteria which have no relation whatever to rheumatism cause arthropathies when inoculated. The organism will often react similarly to widely different agents. He called attention to the researches of Professor Bouchard, who has almost invariably found in the blood and fluids of rheumatic patients common microbes and especially staphylococci, and declared that the problem of causation in this disease is yet far from a definite solution.

[2] Quoted from Dr. N. S. Davis in Sajous' Annual, 1897.

[3] Semaine Médicale, 1897, p. 447.

ANOTHER DEATH FROM PLAGUE IN VIENNA. — One of the nurses who took care of Herr Barisch, the original victim of bubonic plague in Vienna, died recently of the disease.

MEDICAL NOTES.

SMALL-POX IN VIRGINIA. — There are sixty-four small-pox patients in the pest-house of Norfolk County, Va., and October 31st fifteen cases had occurred in the city of Norfolk. The situation is reported to have caused considerable alarm, and compulsory vaccination and other measures are being put in force.

THE HEALTH OF OUR SOLDIERS. — An army surgeon in charge of a Division Hospital writes: "There is a similarity between camp and home life, and that is, when you utterly disregard the laws of hygiene you are liable to become sick. . . . Large doses of quinine, ten to twenty grains, seem to do the trick, when smaller doses long continued will not."

BUBONIC PLAGUE BROUGHT TO SAN FRANCISCO. — On October 28th, the French bark, *Duchesse Anne*, arrived at San Francisco from Hong Kong. Her captain and one of the sailors had fallen victims to bubonic plague during the voyage, and the vessel was in charge of the first officer. The vessel was ordered to Angel Island, where the crew were landed and detained. The vessel was taken to San Quentin, where she was thoroughly disinfected. Bubonic plague is always prevalent in Hong Kong at the time of year when the *Duchesse Anne* sailed — the middle of August — and this year has proved no exception. This occasion is the first for many years, however, in which it has been brought to the American coast.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, November 2, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 41, scarlet fever 25, measles 43, typhoid fever 11.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society, at No. 19 Boylston Place, on Thursday, November 10, 1898, at 2 P. M. Candidates will make personal application to the Secretary and present their medical diploma, or its equivalent, at least three days before the examination. For further particulars apply from 2 to 3 P. M. to John Dane, M.D., Secretary, No. 29 Marlborough Street, Boston.

DIPHTHERIA IN BOSTON. — The present unprecedentedly low mortality from diphtheria in Boston, which is extremely gratifying, is probably due to three factors, namely, the early diagnosis of the disease by the bacteriological examination, the introduction of antitoxin, and the excellent facilities for treatment afforded by the contagious department of the City Hospital.

EAST BOSTON MEDICAL SOCIETY. — A new medical society has been formed with the above name. The object of the society is to promote the professional, scientific and social improvement of its members, and to aid, in any manner, the advancement of the science and practice of medicine; also to aid in the maintenance of a friendly feeling and proper professional relations between its members and to keep the practise of medicine in that locality at a high standard. Any physician in good standing engaged in the practice of medicine in East Boston, who does not profess to practise medicine by any irregular or exclusive system, as spiritualism, homeopathy, allopathy, eclecticism or the like, and is not engaged in aiding in any manner whatsoever any species of charlatanism, may become an active member by receiving the vote of three-fourths of the members in good standing, signing and thereby agreeing to the by-laws, and paying the annual dues in advance. The officers consist of President, Dr. B. F. Campbell; Vice-President, Dr. W. H. Grainger; Secretary, Dr. D. B. Hurley; Treasurer, Dr. W. H. Ensworth; Member of Executive Committee, Dr. M. W. O'Keefe.

THE THIRD TRIP OF THE "BAY STATE." — The hospital ship *Bay State* arrived at Boston from Porto Rico, on October 28th, bringing one hundred and thirty-five sick and convalescent soldiers. One hundred and five were well enough to be given furloughs immediately on landing, and the remainder were sent to hospitals. There were two deaths on the way, both being from typhoid fever. One hundred and fifteen of the soldiers were members of the Sixth Massachusetts, and were taken on board the ship at Arecibo. Seventeen members of the First United States Engineer Corps were taken on at Ponce, and five men at Conanica. The *Bay State* left Conanica for home on October 27th, and had a rather rough trip. The *Bay State* will make no more trips under the auspices of the Volunteer Aid Association, and negotiations are in progress for her sale to the government for use as a hospital ship for the United States Army. The total cost of the ship was about $175,000, the equipment having cost about $125,000.

A WORD OF CAUTION. — The *Monthly Bulletin* of the State Board of Health of Connecticut contains the following timely warning from Dr. C. A. Lindsley, Secretary of the Board: "During the last few weeks many soldiers have returned from the numerous military camps convalescent from typhoid fever or taken down with it after their return. Each of these cases is a source of further infection, unless the precautions, which are now so well known and so effective, are carefully and scrupulously observed. The infective agent is a living germ which is thrown off in great abundance from every typhoid patient with the excretions from his bowels and kidneys. The immediate destruction of these germs by some sure disinfectant is the only means of safety. The importation of so many cases into the State, and their wide distribution in various places, will be very likely to cause additional local outbreaks of the disease if vigilant and unremitting attention is not given to the thorough disinfection of the discharges from the patients and of

whatever of the bedding or clothing may be soiled by them. Circulars on the means of preventing and restricting typhoid fever will be sent freely to any persons on application.

HARVARD'S OLDEST LIVING GRADUATE. — Dr. William L. Russell, of Barre, Mass., celebrated his ninety-ninth birthday on October 28th. Dr. Russell is the oldest living graduate of Harvard College, and has lived to be older than any Harvard graduate with but four exceptions. Dr. Russell visited Cambridge recently, where he was entertained at lunch by his granddaughter, Miss Bertha Howland. Among the guests was the doctor's brother, James, from Lowell, who is ninety-one years old. The journey to Cambridge and home was accomplished by Dr. Russell in one day, with comparatively little fatigue. He was born in the town of Carlisle, October 23, 1799, and is the oldest inhabitant of Barre; he retains his mental and physical faculties in a marked degree.

NEW YORK.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK. — The annual election of the Medical Society of the County of New York, held October 24th, resulted as follows: President, Dr. S. O. Vanderpool; First Vice President, Dr. Henry C. Coe; Second Vice President, Dr. J. Clifton Edgar; Secretary, Dr. Wm. E. Bullard; Assistant Secretary, Dr. John V. D. Young; Treasurer, Dr. John S. Warren; Censors, Drs. E. B. Bronson, J. A. Fordyce, Eugene Fuller, H. T. Hanks and W. L. Carr. The election was one of the most largely attended in the history of the Society, the total number of ballots cast being 648. At the meeting an amendment to the constitution was adopted striking off the name of the editor of the "Medical Directory" as a permanent member of the Comitia Minora, for the reason that all the other members of the committee, which consists of the titular officers and the five censors, are elective.

A GRADUATION OF NURSES. — The annual commencement exercises of the Training School for Nurses of the New York Post-Graduate Hospital were held on October 27th. Dr. George N. Miller presented the diplomas to the graduates, eighteen in number, and addresses were made by the President, Dr. D. B. St. John Roosa and by the Rev. J. L. Parks, rector of Calvary Episcopal Church.

THE CIRCUMTERRESTRIAL BICYCLISTS. — Dr. and Mrs. H. Darwin McIlrath, of Chicago, who are making a tour around the world with their bicycles, arrived from Southampton on October 27th, on the steamship *Pennland*. They started westward from Chicago on October 10, 1895, and claim to have travelled 24,000 miles on land alone.

THE STATE CARE OF THE INSANE. — On October 28th the State Commission on Lunacy at Albany reported that during the fiscal year which has just ended there were 1,018 recoveries in the system of hospitals under its supervision, as against 951 in the year preceding. The average cost per capita for maintenance and treatment was $184.16, which, it is announced, is the lowest rate in any year since the inauguration of the State-care system.

DEATH OF COL. GEORGE E. WARING. — The sad death of Col. George E. Waring, from yellow fever, recalls in a forcible manner that of Prof. Richard A. Proctor, the distinguished astronomer, ten years ago. The latter died at the Willard Parker Hospital on September 12th, 1888, and since then up to the present time there has not been a case of yellow fever in New York, except at quarantine. The Health Officer, Dr. Doty, on being questioned as to the action of his department in permitting the passengers of the *Yucatan*, on which Colonel Waring returned from Havana, to land within less time than the prescribed five days after leaving an infected port, explained that as late in the season as this such stringent regulations are usually dispensed with as unnecessary. Of course, at the time the vessel reached port there was nothing in Colonel Waring's condition to excite suspicion, and there had been no sickness on board during the voyage. Colonel Waring was as much a martyr to duty as any soldier who fell before Santiago. The death of such an eminent sanitarian is a national loss, but perhaps no more significant expression of his usefulness could be recorded than in the simple words "He gave New York clean streets."

THE ADVANTAGES OF ADIPOSE. — A man was recently convicted in Jersey City of assault with intent to kill, who owes his escape from the gallows to the adiposity of his victim. At the trial Dr. A. J. Loomis, who attended the patient, testified that he was struck by three bullets, and that one of them, which lodged in the abdominal region, would probably have killed him had the peritoneal cavity not been protected by an enormous layer of fat, the wounded man weighing nearly 400 pounds.

Miscellany.

A "HOWL OF EXECRATION" AGAINST CHRISTIAN SCIENCE.

HAROLD FREDERIC'S executor in a cable letter to the *New York Times* frees his mind as follows:

The adjourned inquest on Wednesday was mainly occupied in the dissection of Mrs. Altralie Mills, the lady who as a healer professed and yet did not profess to cure Frederic. One of the ablest young men at the bar, Theobald Mathew, a son of Judge Mathew, and himself a personal friend of Harold, was briefed by the executor, and for one long hour or more tried hard to find out what exactly was meant by Christian Science. Two things came out with convincing clearness. One was that Mrs. Mills, whose diamond ear-rings, rustling silk dress, and Regent Street boots remind one but indifferently of the early Christians, had received pay for several weeks at the rate of at least one guinea weekly, presumably for applying remedies to a deadly disease she could not define, and of the workings of which she professed herself disdainfully ignorant. Anyhow, she got her guineas and killed the man as surely as if she had held a drowning child's

head under water; for if ever anything was clearly proved by diagnosis and autopsy in this world, it is that Harold Frederic on September 20th was a sick man, but not sick unto death.

With care he had a dozen years before him. Then enter Christian Science, with Altralie Mills, the healer, at a guinea a week. When some thirty days later, thanks to the wife of Stephen Crane, the doctors regained possession, it was but to tend the last hours of a dying man. Next Wednesday this adjourned inquiry will surely end, and till then English mouths are practically shut. But when the Surrey jury have said their say, whatever that may be, you will rightly or wrongly hear a howl of execration from the north to the south of England.

Obituary.

COLONEL WARING.

THE death of George E. Waring from yellow fever, in the sixty-sixth year of his age, at the very height of a long career of unexampled usefulness, comes as a sad announcement to a nation that owed so much to him, and that still had such high hopes for his helpfulness in solving some of the most difficult problems confronting it. But it came as he would have wished it to come, in the sense that it overtook him in the discharge of a perilous, self-imposed duty.

Before the Civil War, he had already distinguished himself as a writer and lecturer on agriculture, to which he did the great service of bettering the conditions of farming and farm life in New England. He also devised and carried out the system of draining Central Park in New York.

He was one of the first to volunteer in the Civil War and, as colonel of the Fourth Missouri Cavalry, had assigned to him the task of fighting guerillas in the southwest — a duty so full of constant watchfulness and danger that could not be anticipated or guarded against, that one of his bravest officers gave out and felt compelled to be assigned to other duty.

For nearly a dozen years after the war he devoted himself mainly to scientific farming and land drainage. Many of us remember, in his charming Ogden Farm papers, his love of animals and his exquisite literary skill in making a subject ordinarily dry so interesting. He also published several essays and books on these subjects and a delightful volume of war stories.

His studies in draining the land for profit in farming and for health turned his attention to the larger questions of sanitary engineering, to which he began to devote his exclusive attention in 1877. In 1879, he was appointed by the President one of a commission of three to co-operate with the National Board of Health in devising a scheme of sanitary improvement in Memphis, which had been rendered imperative by the terrible scourge of yellow fever in that city in the summers of 1878 and 1879. Of the many recommendations to that end, the plan of sewerage adopted was for the most part his, and he was selected by the city to carry it out. It was absolutely without precedent except on a very small scale, but his courage never faltered in attempting it, although it was opposed by practically the whole body of engineers engaged in similar work in this country. Its triumphant success and the enormous saving of money by it, as compared with the old system of sewerage and house-drainage, made his career, and one success followed another so rapidly, that many towns and many hundreds of thousands of people owe to him more than to any other man the great progress of the last two decades in the sanitary condition of their homes.

Colonel Waring's greatest work, however, was that he gave to this country the best lesson in self-government of recent times, and therein is his chief claim to the everlasting gratitude of every American. As Commissioner of Street Cleaning in New York under Mayor Strong, when he sacrificed a large professional income to conviction and sense of duty, he overthrew a deep-rooted system of corruption and abuse and established an effective system of street cleaning which actually gave to that city clean streets, and he thoroughly routed one of the most daring hordes of political leaders and heelers that ever disgraced our American cities. This he did in the face of persistent opposition which even his friends believed insuperable by a quiet determination and wonderful administrative ability that was perhaps a surprise even to himself.

He was eminently a public-spirited citizen, and at the time of his death he was the candidate of the citizens' State party for State engineer and surveyor. His party leaves "his honored and respected name" upon the ballot as a lesson to his fellow citizens in the coming election.

Colonel Waring volunteered his services to the War Department and was sent to Havana early in October to investigate the sanitary condition of towns where troops were to be located, and to report what steps were necessary to be taken to make them habitable. He was about two weeks in the city of Havana, naturally often in its filthiest parts, reached New York October 25th, working actively upon his report, and died four days later of the fatal black vomit.

He was so quiet and unobtrusive that it was not always easy to imagine the tremendous power of the genial gentleman, in the best sense of that much-abused word, whom so many of us loved and admired. Those of us who knew him well will never forget his strong sense of justice, his fearlessness, his devotion to duty, his manliness, his well-poised self-confidence.

THERAPEUTIC NOTES.

SYCOSIS OF THE UPPER LIP. — The failure to successfully treat this part depends, according to Unna,[1] on the constantly acting reinfection by the nasal discharges, as a consequence of rubbing the part with the handkerchief. Instead of using this last, the patient is advised to employ nasal lavage with a decoction of quinquinia. The dressing of the part consists of a salve or plaster of oxide of zinc and sulphur, with or without ichthyol; this is put on every time after the patient is through with his nasal syringe, which is to replace the handkerchief. Epilation is rarely necessary.

GONORRHEAL EPIDYDIMITIS. — Long[2] recommends the application twice a day, on the inflamed organ, of petrolated guaiacol — 10 to 100. The efficacy of the application is in direct proportion to the intensity of the inflammation. To further the absorption of the exudate, replace the guaiacol with belladonna ointment.

UTERINE HEMORRHAGE.—Professor Dührsen[3] tried the treatment of uterine hemorrhage by the direct application of steam (which was first proposed several years ago by Professor Sueguireff, of Moscow) in a "bleeder," who was exhausted by a profuse and unusually long menstrual flow. Vaporization employed twice, and lasting one-half to two minutes respectively, brought about a complete cessation of the hemorrhage. The author considers this method as most certain and harmless, without the aid of narcosis and without causing the patient any pain, in causing an exfoliation of the mucous membrane of the uterus, and in stopping any hemorrhage therefrom. This last procedure is indicated in exhausting hemorrhages in women past

[1] Semaine Médicale, 280, 1898.
[2] Wien. klin. Rundschau; Lyon Medical, 41, 1898.
[3] Berliner klin. Woch., No. 36, 1898; Wiener klin. Woch., No. 40, 1898.

forty, which may be due to chronic metritis, abnormal brittleness of the vessel walls or small interstitial myomata. In young persons, in whom no indication for exfoliating the mucous membrane of the uterus presents itself, the vaporization should not last over one-fourth of a minute, and should not be repeated before the next menstruation. This method of Sueguireff's has also been employed successfully in septic and putrid endometritis and in cervical and corporeal gonorrhea.

Bronchial Asthma. — Professor v. Noorden[4] advises for the treatment of bronchial asthma the revival of Trousseau's method, which consists in the employment of atropine. Treatment must continue for four to six weeks, beginning with one-sixtieth of a grain and increasing the dose every two or three days till we reach one-tenth of a grain per dose, after which the dosage is gradually diminished. Although no toxic effects have ever been observed while thus employing the drug, still the physician is cautioned to exercise great care while it is being administered. Atropine may not probably influence an individual attack; it is, however, sure to prevent the occurrence of any for some time to come; and if not cured entirely, the patient will still obtain lasting improvement, in cases, of course, in which the disease is not as yet complicated by pulmonary emphysema, nor by a chronic bronchial catarrh.

Correspondence.

REVENUE STAMPS ON DEATH CERTIFICATES.

Boston, October 25, 1898.

Mr. Editor: — As the matter of the enclosed letter seems to me to be of general interest to the profession, and as it is, I believe, the first official information received as to the requirements as to revenue stamps in cases of death certificates I take the liberty of forwarding it to you for publication if you see fit. Respectfully yours,

F. A. Harris, M.D.,
Act. Asst.-Surgeon, U. S. A.

International Revenue Service, District of Massachusetts, Collector's Office.
Boston, Mass., October 22, 1898.

F. A. Harris, M.D., Act. Asst.-Surgeon, U. S. A., Winthrop, Mass.

Dear Sir: — In reply to your letter of August 1st to the Department at Washington, referred to this office, I am requested to reply to your inquiries as follows:

(1) No stamp is required on death certificates required by law to be issued by physicians, which said certificates become part of the vital statistics of the State. If said certificates are issued to private persons for private use, then a stamp tax of ten cents is imposed.

(2) No stamps are required on certificates furnished by an official surgeon of the U. S. A., unless they are for private or personal purposes, when they require a ten-cent stamp.

(3) No stamp is required on certificates issued by the medical examiner or coroner of the State when same are to become part of the record of the State. But if they are issued to private persons for private use, they require a stamp of ten cents each.

(4) All certificates furnished by a physician as a private practitioner when required by law and to be used for private purposes are subject to a stamp tax of ten cents each.

Respectfully yours, James D. Gill,
Collector.

[4] Münch. medic. Woch., September 27, 1898.

METEOROLOGICAL RECORD

For the week ending October 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...9	30.15	56	66	47	75	57	66	N.	N.	9	13	C.	C.	
M..10	30.12	46	52	40	62	70	66	W.	S.	7	10	C.	C.	
T...11	30.03	59	70	48	87	85	86	S.	S.	12	16	F.	C.	
W..12	29.77	60	70	50	92	63	78	S.W.	W.	10	10	O.	C.	.05
T...13	30.12	49	54	44	65	75	70	N.W.	S.	12	8	C.	C.	
F...14	30.02	51	54	48	74	94	79	E.	E.	10	15	O.	O.	.03
S...15	29.86	49	53	44	93	73	83	N.W.	W.	12	22	O.	F.	
☞														

* C., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

For the Week ending Saturday, October 15, 1898.

Cities	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1140	458	11.04	10.84	5.88	2.00	1.66*
Chicago	1,619,238	—	—	—	—	—	—	—
Philadelphia	1,240,226	331	103	16.50	17.40	2.70	3.30	6.10
St. Louis	623,000	—	—	—	—	—	—	—
Boston	528,443	210	80	13.16	10.34	4.23	3.32	2.35
Baltimore	506,260	163	56	18.30	10.88	4.88	4.37	2.50
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	70	27	24.31	5.72	11.44	5.82	4.29
Washington	277,000	100	31	11.00	11.00	3.00	—	1.00
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	50	21	32.00	6.00	20.00	2.00	4.00
Nashville	87,754	29	12	27.60	3.45	17.25	—	10.35
Charleston	65,165	38	13	15.78	13.15	13.15	2.63	—
Worcester	108,340	28	11	25.00	25.00	17.85	—	3.58
Fall River	90,919	32	19	34.43	15.65	31.30	3.13	—
Cambridge	89,724	24	5	12.51	8.34	12.51	—	—
Lowell	83,641	45	17	17.36	6.68	8.68	4.34	—
Lynn	68,703	16	—	18.75	12.50	6.25	—	—
New Bedford	68,340	12	8	25.00	16.66	25.00	—	8.33
Somerville	61,101	8	2	25.00	—	12.50	—	—
Lawrence	57,363	17	10	5.88	5.88	5.88	—	—
Springfield	56,801	20	4	20.00	15.00	5.00	10.00	5.00
Holyoke	43,424	15	3	13.33	13.33	6.66	—	—
Brockton	37,278	8	1	—	12.50	—	—	—
Salem	36,853	8	3	50.00	25.00	12.50	25.00	—
Malden	34,613	—	—	—	—	—	—	—
Chelsea	33,468	10	—	—	—	—	—	—
Haverhill	32,622	8	2	12.50	—	12.50	—	—
Gloucester	30,589	—	—	—	—	—	—	—
Newton	29,716	12	—	—	8.33	—	—	—
Fitchburg	29,436	7	2	14.28	—	—	—	—
Taunton	28,167	15	6	13.33	—	13.33	—	—
Everett	25,338	6	3	—	—	—	—	—
Quincy	23,549	5	2	—	20.00	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,813	6	2	16.66	16.66	16.66	—	—
North Adams	20,971	5	1	40.00	20.00	—	20.00	20.00
Chicopee	17,943	1	0	—	—	—	—	—
Medford	16,511	3	2	—	—	—	—	—
Newburyport	14,918	7	0	14.28	—	14.28	—	—
Melrose	14,582	5	2	—	40.00	—	—	—

Deaths reported 2,453; under five years of age 905; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 355, consumption 293, acute lung diseases 234, diarrheal diseases 169, diphtheria and croup 77, typhoid fever 57, whooping-cough 27, cerebro-spinal meningitis 15, scarlet fever 9, measles 1.

From whooping-cough New York 8, Philadelphia 7, Providence 3, Boston Pittsburg and Lowell 2 each, Salem and Fitchburg 1 each. From cerebro-spinal meningitis New York 6, Boston,

Worcester and Lynn 2 each, Baltimore, Washington and Somerville 1 each. From scarlet fever New York 4, Boston 2, Philadelphia, Baltimore and Washington 1 each. From measles Boston 1.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending October 1st, the death-rate was 21.8. Deaths reported 4,635; acute diseases of the respiratory organs (London) 200, diarrhœa 884, whooping-cough 66, diphtheria 60, measles 30, scarlet fever 26.

The death-rates ranged from 13.8 in Croydon to 38.5 in Salford; Birmingham 23.9, Bradford 21.6, Cardiff 15.5, Gateshead 33.7, Hull 28.8, Leeds 19.9, Leicester 16.5, Liverpool 29.5, London 19.7, Manchester 28.1, Newcastle-on-Tyne 26.4, Nottingham 20.8, Sheffield 25.5.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 22, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrhœal diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	3,438,899	1140	428	11.88	11.70	4.86	2.12	2.97
Chicago . . .	1,819,226	—	—	—	—	—	—	—
Philadelphia .	1,340,226	408	137	13.68	10.08	3.60	3.36	6.24
St. Louis. . .	625,000	—	—	—	—	—	—	—
Boston . . .	535,463	—	—	—	—	—	—	—
Baltimore . .	508,389	197	77	15.81	14.79	7.14	2.04	6.12
Cincinnati . .	405,000	89	—	12.32	4.48	2.24	5.60	4.48
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	285,000	83	25	21.60	8.40	10.80	2.40	6.00
Washington . .	277,000	119	43	17.35	5.95	5.40	4.25	5.95
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence. .	150,000	49	18	16.32	12.24	8.16	4.08	—
Nashville . .	87,754	30	10	13.33	13.33	3.33	3.33	6.66
Charleston . .	65,165	—	—	—	—	—	—	—
Worcester . .	108,250	34	11	5.88	11.76	—	—	5.88
Fall River . .	96,919	—	—	—	—	—	—	—
Cambridge . .	89,724	30	10	13.33	13.33	10.00	—	—
Lowell . . .	88,641	21	12	28.56	—	4.76	9.52	14.28
Lynn	68,705	17	2	17.64	5.88	—	—	—
New Bedford .	66,340	23	7	17.40	4.35	—	13.05	4.35
Somerville . .	61,101	21	6	4.76	14.28	—	—	—
Lawrence . .	57,363	23	9	17.40	4.35	—	—	17.40
Springfield . .	56,501	33	10	21.21	18.18	9.09	3.03	6.06
Holyoke . . .	43,494	11	4	18.18	—	—	—	—
Brockton . .	37,373	—	—	—	—	—	—	—
Salem	34,883	12	4	8.33	16.66	—	—	—
Malden . . .	34,613	9	0	—	—	—	—	—
Chelsea . . .	33,468	13	—	—	—	—	—	—
Haverhill . .	32,022	7	2	14.28	—	—	—	—
Gloucester . .	30,589	—	—	—	—	—	—	—
Newton . . .	29,716	8	4	12.50	25.00	—	—	—
Fitchburg . .	29,438	9	4	11.11	—	11.11	—	—
Taunton . . .	28,167	5	2	40.00	—	40.00	—	—
Everett . . .	25,338	9	5	11.11	11.11	11.11	—	—
Quincy . . .	23,549	8	0	16.66	—	—	—	—
Pittsfield . .	22,643	—	—	—	—	—	—	—
Waltham . . .	21,812	4	0	—	—	—	—	—
North Adams .	20,971	8	3	25.00	12.50	12.50	12.50	—
Chicopee . .	17,842	4	1	—	—	—	—	—
Medford . . .	16,511	4	0	—	—	—	—	—
Newburyport .	14,915	2	0	—	—	—	—	—
Melrose . . .	14,032	3	0	—	—	—	—	—

Deaths reported 2,443: under five years of age 838; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 330, consumption 330, acute lung diseases 258, diarrheal diseases 118, diphtheria and croup 103, typhoid fever 67, whooping-cough 17, cerebro-spinal meningitis 11, scarlet fever 7, measles 4, malarial fever 2.

From whooping-cough New York 11, Philadelphia and Lynn 2 each, Pittsburg 1. From cerebro-spinal meningitis Washington 5, Holyoke 2, Cambridge, Lynn, Somerville and Newton 1 each. From scarlet fever New York 6, Pittsburg 1. From malarial fever Springfield and Clinton 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending October 15th, the death-rate was 19.0. Deaths reported 4,091; acute diseases of the respiratory organs (London) 263, diarrhœa 377, diphtheria 74, fever 63, measles 43, whooping-cough 38, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 10.2 in Brighton to 28.5 in Norwich; Birmingham 20.7, Bradford 17.4, Croydon 11.7, Gateshead 18.1, Hull 24.0, Leeds 19.6, Leicester 14.5, Liverpool 21.9, London 18.5, Manchester 25.1, Newcastle-on-Tyne 23.6, Nottingham 16.3, Salford 25.6, Sheffield 20.5, West Ham 15.3.

METEOROLOGICAL RECORD

For the week ending October 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer.	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...16	30.32	42	48	37	72	81	76	N.	N.E.	10	12	C.	C.	
M..17	30.10	40	45	36	84	88	86	N.	E.	9	12	O.	O.	
T...18	30.19	50	57	44	63	94	78	E.	S.E.	18	14	O.	R.	.73
W..19	30.21	56	63	48	81	55	68	N.W.	N.	12	8	C.	C.	.03
T...20	30.21	51	53	49	97	97	97	N.E.	E.	12	15	R.	R.	.03
F...21	29.81	61	70	52	93	97	95	S.	S.W.	24	12	H.	O.	1.53
S...22	29.90	54	60	47	69	60	64	W.	W.	18	14	C.	C.	
☞	30.11		57	46			81							2.37

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCTOBER 27, 1898.

McINTOSH, W. P., passed assistant surgeon. To rejoin station at Louisville, Ky. October 26, 1898.

STONER, J. B., passed assistant surgeon. To rejoin station at Buffalo, N. Y. October 27, 1898.

GEDDINGS, H. D., passed assistant surgeon. To await orders at Lenoir, N. C. October 27, 1898.

YOUNG, G. B., passed assistant surgeon. To rejoin station at Delaware Breakwater Quarantine, Lewes, Del. October 24, 1898.

STIMPSON, W. G., passed assistant surgeon. To assume temporary command of Service at Memphis, Tenn. October 26, 1898.

EAGER, J. M., passed assistant surgeon. To inspect ports at Brownsville and Corpus Christi, Tex. October 24, 1898. To proceed to Laredo, Tex., for special temporary duty. October 26, 1898.

GARDNER, C. H., passed assistant surgeon. To rejoin station at Baltimore, Md. October 27, 1898.

OAKLEY, J. H., passed assistant surgeon. To proceed to Chattanooga, Tenn., for special temporary duty. October 22, 1898. Upon completion of duties at Chattanooga, Tenn., to rejoin station at Evansville, Ind. October 27, 1898.

COFER, L. E., assistant surgeon. To proceed to San Diego Quarantine, Cal., as inspector. October 27, 1898.

CUMMING, H. S., assistant surgeon. To rejoin station at New York, N. Y. October 27, 1898.

LAVINDER, C. H., assistant surgeon. To proceed to Egmont Key via St. Petersburgh, Fla., for temporary duty. October 27, 1898.

PARKER, H. B., assistant surgeon. Assigned to duty as Sanitary Inspector on the U. S. Transport "Minnewaska." October 24, 1898.

VON EZDORF, R. H., assistant surgeon. Granted leave of absence for fifteen days on account of sickness. October 27, 1898.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, November 7th, at 8 o'clock. The subject of the evening will be "The Treatment of Cleft Palate." The following gentlemen will take part in the discussion: Drs. J. C. Warren, C. B. Porter, T. Fillebrown, P. W. Moriarty, H. A. Baker and G. F. Grant.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

RECENT DEATHS.

ARTHUR KENDLE, M.D., M.M.S.S., died in Salem, October 27, 1898, aged fifty-nine years.

FRANCIS L. HAYNES, M.D., of Los Angeles, Cal., formerly professor of gynecology at the Medical College of the University of Southern California, died recently at Los Angeles. Dr. Haynes was graduated from the Medical Department of the University of Pennsylvania in 1881.

Original Articles.

FATTY DEGENERATION.[1]

BY CHAUNCY REA BURR, M.D. (HARV.), PH.B. (YALE), SAN JOSE, CAL.

IT has long been known that fat and urea are formed when albumin disintegrates. Opinions differ and have differed as to whether these are the ultimate or the proximate products of disintegration. Hoppe-Seyler[2] thinks fat is not formed directly from albumin, but that glycogen is formed from albumin and then fat from glycogen. Voit,[3] on the other hand, is quite certain that fat may be formed at once from albumin, and this seemed to be the common opinion.

In order to reconcile the various observations which have been made on the subject, it is necessary to have some sort of a working hypothesis. The writer is inclined to think that a cellular digestive ferment is at the bottom of the change in question; for it occurs normally and in health; it also occurs in disease and even after death. An instance of the normal change is seen in the hepatic cells after a meal, where the fat globules therein are developed *in situ*, and in health from the albuminoid protoplasm of the cell. An instance of the second change is seen in the atheromatous arteries of old age or in fatty degeneration of the heart; while an instance of the third change is seen in the conversion of dead flesh into adipocere.

The liver of the cod if kept for twenty-five days in a damp place becomes fatty according to Davy,[4] while at the same time carbonic acid and ammonia are formed. When urea is heated, ammonia is given off, so that the relation between the two is intimate. Quain has also produced the fatty change in muscle immersed for a sufficient time in acidulated water to delay putrefaction. So that the conversion, after death, of albumin into fat and a nitrogenous substance resembling, if not identical with, urea, seems well established. This cellular digestion after death suggests the corresponding *post-mortem* gastric digestion known as *Gastromalacia*.

The hypothesis admitted of the existence of a cellular digestive ferment which digests albuminoid matter. It is easy to understand why the change into fat occurs in health and disease and even after death.

There must be some special use for fat in the economy to be so constantly formed and under such divers conditions. It is, as is well known, an easily oxidized form of fuel, the products of combustion being, as with all carbonaceous matters, carbonic acid and water. The same is true of glucose. Moreover, glucose and glycogen are muscle foods. Prolonged muscular exercise produces a great increase in the quantity of carbonic acid excreted,[5] but not a corresponding increase in that of urea. As the production of urea and that of fat out of albumin must necessarily bear a certain ratio to each other, the fact that prolonged muscular exercise does not increase the quantity of urea excreted, indicated that the quantity of fat formed from albumin cannot be increased either. The energy manifested must be maintained from some other source. Glycogen is known to be a constant ingredient of muscle; it diminishes during muscular exercise and the supposition is that it is changed into glucose which feeds the cellular protoplasm and is thus the source of energy. A recent experiment by the Prussian war office seems to corroborate this. After prolonged muscular exercise it was found, in the cases examined, that the blood was very poor in sugar and that a sweet draught containing thirty grains of sugar administered at such times had a markedly invigorating effect.[6] Muscular work can also be performed for long periods upon a diet of carbohydrates and fat. So that the conviction has gradually been arrived at that the exhibition of energy within the body is due to the combustion of hydrocarbons, as fats and sugars, and not to that of proteids, as albumin.

It was suggested by Houghton long ago[7] that albumin taken as food splits up into glycogen and urea. The chemical composition of albumin suggests this, and the theory was put forward to explain the formation of glycogen upon a purely albuminoid diet. If this analysis holds good, the synthesis ought to be equally good that glycogen and urea combined make albumin.

It is known that vegetable protoplasm can change starch into sugar and sugar into starch, and it is further known that animal protoplasm can change glycogen into sugar. To complete the simile, it would be necessary to change sugar into glycogen, and there is evidence that this can be done; for a larger quantity of sugar can be injected into the portal vein without reappearing in the urine, than can be injected into the jugular vein; the reason being that the excess of sugar in the portal vein is changed into glycogen and locked up in the liver cells.[8]

The liver, as is well known, is normally full of glycogen, which is formed *in situ* from the sugars brought thither by the portal circulation. It is thus an arrester of sugar, as Pavy has maintained. On the other hand, there is but little doubt that it also has the attribute ascribed to it by Bernard, namely, that of keeping the supply of sugar in the blood constant by transforming glycogen into sugar as required. Furthermore, as glycogen is scarcely present at all in healthy blood, while sugar is, and, on the other hand, glycogen is an almost constant ingredient of cellular protoplasm, while sugar is not, there seems reason to suppose that cellular protoplasm in general as well as hepatic protoplasm in particular has the power to change sugar into glycogen, and glycogen back again into sugar. This process languishes in the absence or insufficient supply of oxygen, for Livierato[9] demonstrated that whereas in infectious fevers without pulmonary complication (for example, typhoid fever), the supply of glycogen in the blood was increased and extracellular, yet in the same class of diseases with pulmonary complication (for example, typhoid pneumonia) the supply of glycogen in the blood was increased and intracellular.

It may not be possible, as yet, to trace the exact connection between glycogen and albumin, but there is every reason to suppose that it is intimate, and of the nature of a chemical compound. Proteid matter is the other form of food required by the living cell.

As peptone, it is taken up by the leucocytes in the blood, and secreted by them in the form of nuclein which specifically nourishes the nuclei and structural

[1] Read before the Santa Clara Medical Association.
[2] Physiol. Chemie.
[3] Zeitschr. f. Biol., v, and Neues Rep. f. Pharmacie, xx.
[4] Williams: Pulmonary Consumption, Phila., 1871, p. 44.
[5] Thompson: Practical Diabetes, New York, 1866, p. 26.
[6] New York Medical Record, October 3, 1877.
[7] Dublin Quarterly Journal, November, 1861, p. 389.
[8] Foster: Physiol., Phila., 1878, p. 492.
[9] Deutsche. Archiv. für klinische Medecin, Leipzig, B. 23, p. 369.

MEDICAL NOTES.

SMALL-POX IN VIRGINIA. — There are sixty-four small-pox patients in the pest-house of Norfolk County, Va., and October 31st fifteen cases had occurred in the city of Norfolk. The situation is reported to have caused considerable alarm, and compulsory vaccination and other measures are being put in force.

THE HEALTH OF OUR SOLDIERS. — An army surgeon in charge of a Division Hospital writes: "There is a similarity between camp and home life, and that is, when you utterly disregard the laws of hygiene you are liable to become sick. . . . Large doses of quinine, ten to twenty grains, seem to do the trick, when smaller doses long continued will not."

BUBONIC PLAGUE BROUGHT TO SAN FRANCISCO. — On October 28th, the French bark, *Duchesse Anne*, arrived at San Francisco from Hong Kong. Her captain and one of the sailors had fallen victims to bubonic plague during the voyage, and the vessel was in charge of the first officer. The vessel was ordered to Angel Island, where the crew were landed and detained. The vessel was taken to San Quentin, where she was thoroughly disinfected. Bubonic plague is always prevalent in Hong Kong at the time of year when the *Duchesse Anne* sailed — the middle of August — and this year has proved no exception. This occasion is the first for many years, however, in which it has been brought to the American coast.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, November 2, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 41, scarlet fever 25, measles 43, typhoid fever 11.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society, at No. 19 Boylston Place, on Thursday, November 10, 1898, at 2 P. M. Candidates will make personal application to the Secretary and present their medical diploma, or its equivalent, at least three days before the examination. For further particulars apply from 2 to 3 P. M. to John Dane, M.D., Secretary, No. 29 Marlborough Street, Boston.

DIPHTHERIA IN BOSTON. — The present unprecedentedly low mortality from diphtheria in Boston, which is extremely gratifying, is probably due to three factors, namely, the early diagnosis of the disease by the bacteriological examination, the introduction of antitoxin, and the excellent facilities for treatment afforded by the contagious department of the City Hospital.

EAST BOSTON MEDICAL SOCIETY. — A new medical society has been formed with the above name. The object of the society is to promote the professional, scientific and social improvement of its members, and to aid, in any manner, the advancement of the science and practice of medicine; also to aid in the maintenance of a friendly feeling and proper professional relations between its members and to keep the practise of medicine in that locality at a high standard. Any physician in good standing engaged in the practice of medicine in East Boston, who does not profess to practise medicine by any irregular or exclusive system, as spiritualism, homeopathy, allopathy, eclecticism or the like, and is not engaged in aiding in any manner whatsoever any species of charlatanism, may become an active member by receiving the vote of three-fourths of the members in good standing, signing and thereby agreeing to the by-laws, and paying the annual dues in advance. The officers consist of President, Dr. B. F. Campbell; Vice-President, Dr. W. H. Grainger; Secretary, Dr. D. B. Hurley; Treasurer, Dr. W. H. Ensworth; Member of Executive Committee, Dr. M. W. O'Keefe.

THE THIRD TRIP OF THE "BAY STATE." — The hospital ship *Bay State* arrived at Boston from Porto Rico, on October 28th, bringing one hundred and thirty-five sick and convalescent soldiers. One hundred and five were well enough to be given furloughs immediately on landing, and the remainder were sent to hospitals. There were two deaths on the way, both being from typhoid fever. One hundred and fifteen of the soldiers were members of the Sixth Massachusetts, and were taken on board the ship at Arecibo. Seventeen members of the First United States Engineer Corps were taken on at Ponce, and five men at Conanica. The *Bay State* left Conanica for home on October 27th, and had a rather rough trip. The *Bay State* will make no more trips under the auspices of the Volunteer Aid Association, and negotiations are in progress for her sale to the government for use as a hospital ship for the United States Army. The total cost of the ship was about $175,000, the equipment having cost about $125,000.

A WORD OF CAUTION. — The *Monthly Bulletin* of the State Board of Health of Connecticut contains the following timely warning from Dr. C. A. Lindsley, Secretary of the Board: "During the last few weeks many soldiers have returned from the numerous military camps convalescent from typhoid fever or taken down with it after their return. Each of these cases is a source of further infection, unless the precautions, which are now so well known and so effective, are carefully and scrupulously observed. The infective agent is a living germ which is thrown off in great abundance from every typhoid patient with the excretions from his bowels and kidneys. The immediate destruction of these germs by some sure disinfectant is the only means of safety. The importation of so many cases into the State, and their wide distribution in various places, will be very likely to cause additional local outbreaks of the disease if vigilant and unremitting attention is not given to the thorough disinfection of the discharges from the patients and of

whatever of the bedding or clothing may be soiled by them. Circulars on the means of preventing and restricting typhoid fever will be sent freely to any persons on application.

Harvard's Oldest Living Graduate. — Dr. William L. Russell, of Barre, Mass., celebrated his ninety-ninth birthday on October 28th. Dr. Russell is the oldest living graduate of Harvard College, and has lived to be older than any Harvard graduate with but four exceptions. Dr. Russell visited Cambridge recently, where he was entertained at lunch by his granddaughter, Miss Bertha Howland. Among the guests was the doctor's brother, James, from Lowell, who is ninety-one years old. The journey to Cambridge and home was accomplished by Dr. Russell in one day, with comparatively little fatigue. He was born in the town of Carlisle, October 23, 1799, and is the oldest inhabitant of Barre; he retains his mental and physical faculties in a marked degree.

NEW YORK.

The Medical Society of the County of New York. — The annual election of the Medical Society of the County of New York, held October 24th, resulted as follows: President, Dr. S. O. Vanderpool; First Vice President, Dr. Henry C. Coe; Second Vice President, Dr. J. Clifton Edgar; Secretary, Dr. Wm. E. Bullard; Assistant Secretary, Dr. John V. D. Young; Treasurer, Dr. John S. Warren; Censors, Drs. E. B. Bronson, J. A. Fordyce, Eugene Fuller, H. T. Hanks and W. L. Carr. The election was one of the most largely attended in the history of the Society, the total number of ballots cast being 648. At the meeting an amendment to the constitution was adopted striking off the name of the editor of the "Medical Directory" as a permanent member of the Comitia Minora, for the reason that all the other members of the committee, which consists of the titular officers and the five censors, are elective.

A Graduation of Nurses. — The annual commencement exercises of the Training School for Nurses of the New York Post-Graduate Hospital were held on October 27th. Dr. George N. Miller presented the diplomas to the graduates, eighteen in number, and addresses were made by the President, Dr. D. B. St. John Roosa and by the Rev. J. L. Parks, rector of Calvary Episcopal Church.

The Circumterrestrial Bicyclists. — Dr. and Mrs. H. Darwin McIlrath, of Chicago, who are making a tour around the world with their bicycles, arrived from Southampton on October 27th, on the steamship *Pennland*. They started westward from Chicago on October 10, 1895, and claim to have travelled 24,000 miles on land alone.

The State Care of the Insane. — On October 28th the State Commission on Lunacy at Albany reported that during the fiscal year which has just ended there were 1,018 recoveries in the system of hospitals under its supervision, as against 951 in the year preceding. The average cost per capita for maintenance and treatment was $184.16, which, it is announced, is the lowest rate in any year since the inauguration of the State-care system.

Death of Col. George E. Waring. — The sad death of Col. George E. Waring, from yellow fever, recalls in a forcible manner that of Prof. Richard A. Proctor, the distinguished astronomer, ten years ago. The latter died at the Willard Parker Hospital on September 12th, 1888, and since then up to the present time there has not been a case of yellow fever in New York, except at quarantine. The Health Officer, Dr. Doty, on being questioned as to the action of his department in permitting the passengers of the *Yucatan*, on which Colonel Waring returned from Havana, to land within less time than the prescribed five days after leaving an infected port, explained that as late in the season as this such stringent regulations are usually dispensed with as unnecessary. Of course, at the time the vessel reached port there was nothing in Colonel Waring's condition to excite suspicion, and there had been no sickness on board during the voyage. Colonel Waring was as much a martyr to duty as any soldier who fell before Santiago. The death of such an eminent sanitarian is a national loss, but perhaps no more significant expression of his usefulness could be recorded than in the simple words "He gave New York clean streets."

The Advantages of Adipose. — A man was recently convicted in Jersey City of assault with intent to kill, who owes his escape from the gallows to the adiposity of his victim. At the trial Dr. A. J. Loomis, who attended the patient, testified that he was struck by three bullets, and that one of them, which lodged in the abdominal region, would probably have killed him had the peritoneal cavity not been protected by an enormous layer of fat, the wounded man weighing nearly 400 pounds.

Miscellany.

A "HOWL OF EXECRATION" AGAINST CHRISTIAN SCIENCE.

Harold Frederic's executor in a cable letter to the *New York Times* frees his mind as follows:

The adjourned inquest on Wednesday was mainly occupied in the dissection of Mrs. Altralie Mills, the lady who as a healer professed and yet did not profess to cure Frederic. One of the ablest young men at the bar, Theobald Mathew, a son of Judge Mathew, and himself a personal friend of Harold, was briefed by the executor, and for one long hour or more tried hard to find out what exactly was meant by Christian Science. Two things came out with convincing clearness. One was that Mrs. Mills, whose diamond ear-rings, rustling silk dress, and Regent Street boots remind one but indifferently of the early Christians, had received pay for several weeks at the rate of at least one guinea weekly, presumably for applying remedies to a deadly disease she could not define, and of the workings of which she professed herself disdainfully ignorant. Anyhow, she got her guineas and killed the man as surely as if she had held a drowning child's

head under water; for if ever anything was clearly proved by diagnosis and autopsy in this world, it is that Harold Frederic on September 20th was a sick man, but not sick unto death.

With care he had a dozen years before him. Then enter Christian Science, with Alfralie Mills, the healer, at a guinea a week. When some thirty days later, thanks to the wife of Stephen Crane, the doctors regained possession, it was but to tend the last hours of a dying man. Next Wednesday this adjourned inquiry will surely end, and till then English mouths are practically shut. But when the Surrey jury have said their say, whatever that may be, you will rightly or wrongly hear a howl of execration from the north to the south of England.

Obituary.

COLONEL WARING.

THE death of George E. Waring from yellow fever, in the sixty-sixth year of his age, at the very height of a long career of unexampled usefulness, comes as a sad announcement to a nation that owed so much to him, and that still had such high hopes for his helpfulness in solving some of the most difficult problems confronting it. But it came as he would have wished it to come, in the sense that it overtook him in the discharge of a perilous, self-imposed duty.

Before the Civil War, he had already distinguished himself as a writer and lecturer on agriculture, to which he did the great service of bettering the conditions of farming and farm life in New England. He also devised and carried out the system of draining Central Park in New York.

He was one of the first to volunteer in the Civil War and, as colonel of the Fourth Missouri Cavalry, had assigned to him the task of fighting guerillas in the southwest — a duty so full of constant watchfulness and danger that could not be anticipated or guarded against, that one of his bravest officers gave out and felt compelled to be assigned to other duty.

For nearly a dozen years after the war he devoted himself mainly to scientific farming and land drainage. Many of us remember, in his charming Ogden Farm papers, his love of animals and his exquisite literary skill in making a subject ordinarily dry so interesting. He also published several essays and books on these subjects and a delightful volume of war stories.

His studies in draining the land for profit in farming and for health turned his attention to the larger questions of sanitary engineering, to which he began to devote his exclusive attention in 1877. In 1879, he was appointed by the President one of a commission of three to co-operate with the National Board of Health in devising a scheme of sanitary improvement in Memphis, which had been rendered imperative by the terrible scourge of yellow fever in that city in the summers of 1878 and 1879. Of the many recommendations to that end, the plan of sewerage adopted was for the most part his, and he was selected by the city to carry it out. It was absolutely without precedent except on a very small scale, but his courage never faltered in attempting it, although it was opposed by practically the whole body of engineers engaged in similar work in this country. Its triumphant success and the enormous saving of money by it, as compared with the old system of sewerage and house-drainage, made his career, and one success followed another so rapidly, that many towns and many hundreds of thousands of people owe to him more than to any other man the great progress of the last two decades in the sanitary condition of their homes.

Colonel Waring's greatest work, however, was that he gave to this country the best lesson in self-government of recent times, and therein is his chief claim to the everlasting gratitude of every American. As Commissioner of Street Cleaning in New York under Mayor Strong, when he sacrificed a large professional income to conviction and sense of duty, he overthrew a deep-rooted system of corruption and abuse and established an effective system of street cleaning which actually gave to that city clean streets, and he thoroughly routed one of the most daring hordes of political leaders and heelers that ever disgraced our American cities. This he did in the face of persistent opposition which even his friends believed insuperable by a quiet determination and wonderful administrative ability that was perhaps a surprise even to himself.

He was eminently a public-spirited citizen, and at the time of his death he was the candidate of the citizens' State party for State engineer and surveyor. His party leaves "his honored and respected name" upon the ballot as a lesson to his fellow citizens in the coming election.

Colonel Waring volunteered his services to the War Department and was sent to Havana early in October to investigate the sanitary condition of towns where troops were to be located, and to report what steps were necessary to be taken to make them habitable. He was about two weeks in the city of Havana, naturally often in its filthiest parts, reached New York October 25th, working actively upon his report, and died four days later of the fatal black vomit.

He was so quiet and unobtrusive that it was not always easy to imagine the tremendous power of the genial gentleman, in the best sense of that much-abused word, whom so many of us loved and admired. Those of us who knew him well will never forget his strong sense of justice, his fearlessness, his devotion to duty, his manliness, his well-poised self-confidence.

THERAPEUTIC NOTES.

SYCOSIS OF THE UPPER LIP. — The failure to successfully treat this part depends, according to UNNA,[1] on the constantly acting reinfection by the nasal discharges, as a consequence of rubbing the part with the handkerchief. Instead of using this last, the patient is advised to employ nasal lavage with a decoction of quinquinia. The dressing of the part consists of a salve or plaster of oxide of zinc and sulphur, with or without ichthyol; this is put on every time after the patient is through with his nasal syringe, which is to replace the handkerchief. Epilation is rarely necessary.

GONORRHEAL EPIDYDIMITIS. — LONG[2] recommends the application twice a day, on the inflamed organ, of petrolated guaiacol — 10 to 100. The efficacy of the application is in direct proportion to the intensity of the inflammation. To further the absorption of the exudate, replace the guaiacol with belladonna ointment.

UTERINE HEMORRHAGE.—Professor DÜHRSEN[3] tried the treatment of uterine hemorrhage by the direct application of steam (which was first proposed several years ago by Professor SNEGUIREFF, of Moscow) in a "bleeder," who was exhausted by a profuse and unusually long menstrual flow. Vaporization employed twice, and lasting one-half to two minutes respectively, brought about a complete cessation of the hemorrhage. The author considers this method as most certain and harmless, without the aid of narcosis and without causing the patient any pain, in causing an exfoliation of the mucous membrane of the uterus, and in stopping any hemorrhage therefrom. This last procedure is indicated in exhausting hemorrhages in women past

[1] Semaine Médicale, 260, 1898.
[2] Wien. klin. Rundschau; Lyon Medical, 41, 1898.
[3] Berliner klin. Woch., No. 36, 1898; Wiener klin. Woch., No. 29, 1898.

forty, which may be due to chronic metritis, abnormal brittleness of the vessel walls or small interstitial myomata. In young persons, in whom no indication for exfoliating the mucous membrane of the uterus presents itself, the vaporization should not last over one-fourth of a minute, and should not be repeated before the next menstruation. This method of Sueguireff's has also been employed successfully in septic and putrid endometritis and in cervical and corporeal gonorrhea.

Bronchial Asthma. — Professor v. Noorden[1] advises for the treatment of bronchial asthma the revival of Trousseau's method, which consists in the employment of atropine. Treatment must continue for four to six weeks, beginning with one-sixtieth of a grain and increasing the dose every two or three days till we reach one-tenth of a grain per dose, after which the dosage is gradually diminished. Although no toxic effects have ever been observed while thus employing the drug, still the physician is cautioned to exercise great care while it is being administered. Atropine may not probably influence an individual attack; it is, however, sure to prevent the occurrence of any for some time to come; and if not cured entirely, the patient will still obtain lasting improvement, in cases, of course, in which the disease is not as yet complicated by pulmonary emphysema, nor by a chronic bronchial catarrh.

Correspondence.

REVENUE STAMPS ON DEATH CERTIFICATES.

Boston, October 25, 1898.

Mr. Editor: — As the matter of the enclosed letter seems to me to be of general interest to the profession, and as it is, I believe, the first official information received as to the requirements as to revenue stamps in cases of death certificates I take the liberty of forwarding it to you for publication if you see fit. Respectfully yours,

F. A. Harris, M.D.,
Act. Asst.-Surgeon, U. S. A.

International Revenue Service, District of Massachusetts, Collector's Office.
Boston, Mass., October 22, 1898.

F. A. Harris, M.D., Act. Asst.-Surgeon, U. S. A.,
Winthrop, Mass.

Dear Sir: — In reply to your letter of August 1st to the Department at Washington, referred to this office, I am requested to reply to your inquiries as follows:

(1) No stamp is required on death certificates required by law to be issued by physicians, which said certificates become part of the vital statistics of the State. If said certificates are issued to private persons for private use, then a stamp tax of ten cents is imposed.

(2) No stamps are required on certificates furnished by an official surgeon of the U. S. A., unless they are for private or personal purposes, when they require a ten-cent stamp.

(3) No stamp is required on certificates issued by the medical examiner or coroner of the State when same are to become part of the record of the State. But if they are issued to private persons for private use, they require a stamp of ten cents each.

(4) All certificates furnished by a physician as a private practitioner when required by law and to be used for private purposes are subject to a stamp tax of ten cents each.

Respectfully yours, James D. Gill,
Collector.

[1] Münch. medic. Woch., September 27, 1898.

METEOROLOGICAL RECORD

For the week ending October 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	We'th'r. 8.00 A. M.	We'th'r. 8.00 P. M.	Rainfall in inches.
S....9	30.15	58	66	47	75	57	66	N.	N.	9	13	C.	C.	
M..10	30.12	46	52	40	63	70	66	W.	S.	7	10	C.	C.	
T...11	30.03	58	70	48	87	85	86	S.	S.	12	16	F.	F.	
W..12	29.77	60	70	50	92	82	87	S.W.	W.	10	10	O.	C.	.65
T...13	30.13	49	54	46	93	75	70	N.W.	S.	12	8	C.	C.	
F...14	30.02	51	54	48	74	84	79	E.	E.	10	18	O.	O.	.68
S...15	29.66	49	53	44	93	73	83	N.W.	W.	12	22	O.	F.	
☞														

* O, cloudy; C, clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

For the Week ending Saturday, October 15, 1898.

Cities	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1140	459	11.06	10.84	5.88	2.80	1.67
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	331	109	16.50	17.40	3.70	3.30	6.10
St. Louis	622,000	—	—	—	—	—	—	—
Boston	528,483	210	80	13.16	10.34	4.23	3.29	2.35
Baltimore	504,380	165	54	13.30	10.30	4.26	4.57	2.93
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	360,000	—	—	—	—	—	—	—
Pittsburg	350,000	70	27	24.31	5.73	11.44	5.73	4.29
Washington	277,000	100	31	11.00	11.00	8.00	—	1.00
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	50	21	22.00	6.00	20.00	2.00	4.00
Nashville	87,754	29	12	27.60	3.45	17.25	—	10.35
Charleston	65,165	26	13	15.74	15.15	15.15	3.03	—
Worcester	108,940	28	11	25.00	25.00	17.85	—	3.58
Fall River	93,919	35	19	34.43	18.65	31.20	3.13	—
Cambridge	89,724	34	5	12.51	8.34	12.51	—	—
Lowell	88,641	46	17	17.36	6.52	8.68	4.34	—
Lynn	88,703	16	—	18.75	12.50	6.25	—	—
New Bedford	66,340	12	8	25.00	16.66	25.00	—	8.33
Somerville	61,101	8	2	25.00	—	12.50	—	—
Lawrence	57,283	17	10	5.88	5.88	5.88	—	—
Springfield	54,801	20	4	20.00	15.00	5.00	10.00	5.00
Holyoke	43,494	15	3	13.33	13.33	6.66	—	—
Brockton	37,278	8	1	—	12.50	—	—	—
Salem	36,883	8	3	50.00	25.00	12.50	25.00	—
Malden	34,613	—	—	—	—	—	—	—
Chelsea	33,488	10	—	—	—	—	—	—
Haverhill	30,622	8	2	12.50	—	12.50	—	—
Gloucester	30,589	—	—	—	—	—	—	—
Newton	29,716	12	—	—	8.33	—	—	—
Fitchburg	29,438	7	2	14.28	—	—	—	—
Taunton	28,167	15	6	13.33	—	13.33	—	—
Everett	28,258	6	2	—	—	—	—	—
Quincy	23,540	5	2	—	20.00	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	6	2	16.66	16.66	16.66	—	—
North Adams	20,971	5	1	40.00	20.00	—	20.00	20.00
Chicopee	17,842	1	0	—	—	—	—	—
Medford	16,511	2	2	—	—	—	—	—
Newburyport	14,918	7	0	14.28	—	14.28	—	—
Melrose	14,032	5	2	—	40.00	—	—	—

Deaths reported 2,455; under five years of age 908; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 355, consumption 293, acute lung diseases 234, diarrheal diseases 169, diphtheria and croup 77, typhoid fever 57, whooping-cough 27, cerebro-spinal meningitis 15, scarlet fever 9, measles 1.

From whooping-cough New York 6, Philadelphia 7, Providence 3, Boston Pittsburg and Lowell 2 each, Salem and Fitchburg 1 each. From cerebro-spinal meningitis New York 6, Boston,

Worcester and Lynn 2 each, Baltimore, Washington and Somerville 1 each. From scarlet fever New York 4, Boston 2, Philadelphia, Baltimore and Washington 1 each. From measles Boston 1.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending October 1st, the death-rate was 21.8. Deaths reported 4,695; acute diseases of the respiratory organs (London) 200, diarrhœa 884, whooping-cough 66, diphtheria 60, measles 30, scarlet fever 26.

The death-rates ranged from 13.8 in Croydon to 38.5 in Salford; Birmingham 23.9, Bradford 21.6, Cardiff 15.5, Gateshead 33.7, Hull 28.8, Leeds 19.9, Leicester 16.5, Liverpool 28.5, London 19.7, Manchester 28.1, Newcastle-on-Tyne 26.4, Nottingham 20.8, Sheffield 25.5.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 22, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrhœal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1140	428	11.88	11.70	4.86	2.12	2.97
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,360,226	408	137	13.68	10.08	3.60	3.36	6.24
St. Louis	633,000	—	—	—	—	—	—	—
Boston	628,463	—	—	—	—	—	—	—
Baltimore	508,399	197	77	15.81	14.79	7.14	2.04	6.12
Cincinnati	405,000	89	—	13.32	4.48	2.24	5.60	4.48
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	83	25	21.60	8.40	10.80	2.40	6.00
Washington	277,000	119	43	17.85	5.95	3.40	4.25	5.95
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	49	18	16.32	12.24	8.16	4.08	—
Nashville	87,754	30	10	13.33	13.33	3.33	3.33	6.66
Charleston	65,165	—	—	—	—	—	—	—
Worcester	108,250	34	11	5.88	11.76	—	—	5.88
Fall River	85,919	—	—	—	—	—	—	—
Cambridge	89,724	30	10	13.33	13.33	10.00	—	—
Lowell	88,641	21	12	28.56	—	4.76	9.52	14.28
Lynn	68,703	17	2	17.64	5.88	—	—	—
New Bedford	66,340	23	7	17.40	4.35	—	13.05	4.35
Somerville	61,101	21	6	4.76	14.28	—	—	—
Lawrence	57,363	23	9	17.40	4.35	—	—	17.40
Springfield	56,501	33	10	21.21	18.18	9.09	3.03	6.06
Holyoke	43,424	11	4	18.18	—	—	—	—
Brockton	37,278	—	—	—	—	—	—	—
Salem	36,853	13	4	8.33	16.66	—	—	—
Malden	34,613	9	0	—	—	—	—	—
Chelsea	33,448	13	—	—	—	—	—	—
Haverhill	32,622	7	2	14.28	—	—	—	—
Gloucester	30,589	—	—	—	—	—	—	—
Newton	29,716	8	4	12.50	25.00	—	—	—
Fitchburg	29,429	9	4	11.11	—	11.11	—	—
Taunton	28,167	5	2	40.00	—	40.00	—	—
Everett	25,338	9	5	11.11	11.11	11.11	—	—
Quincy	23,549	6	0	16.66	—	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	4	0	—	—	—	—	—
North Adams	20,971	8	3	25.00	12.50	12.50	12.50	—
Chicopee	17,842	4	1	—	—	—	—	—
Medford	16,511	4	0	—	—	—	—	—
Newburyport	14,918	2	0	—	—	—	—	—
Melrose	14,032	3	0	—	—	—	—	—

Deaths reported 2,443; under five years of age 838; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 330, consumption 330, acute lung diseases 258, diarrheal diseases 118, diphtheria and croup 103, typhoid fever 67, whooping-cough 17, cerebro-spinal meningitis 11, scarlet fever 7, measles 4, malarial fever 2.

From whooping-cough New York 11, Philadelphia and Lynn 2 each, Pittsburg 1. From cerebro-spinal meningitis Washington 5, Holyoke 2, Cambridge, Lynn, Somerville and Newton 1 each. From scarlet fever New York 6, Pittsburg 1. From malarial fever Springfield and Clinton 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending October 15th, the death-rate was 19.0. Deaths reported 4,091; acute diseases of the respiratory organs (London) 263, diarrhœa 387, diphtheria 74, fever 63, measles 43, whooping-cough 38, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 10.2 in Brighton to 28.5 in Norwich, Birmingham 20.7, Bradford 17.4, Croydon 11.7, Gateshead 18.1, Hull 24.0, Leeds 19.6, Leicester 14.5, Liverpool 21.9, London 18.5, Manchester 25.1, Newcastle-on-Tyne 23.6, Nottingham 16.3, Salford 29.6, Sheffield 20.5, West Ham 15.3.

METEOROLOGICAL RECORD

For the week ending October 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...16	30.32	42	48	37	72	81	76	N.	N.E.	10	12	C.	C.	
M...17	30.40	40	45	36	84	88	86	N.	E.	9	12	O.	O.	
T...18	30.19	50	57	44	63	94	78	E.	S.E.	18	14	O.	R.	.78
W...19	30.21	56	65	48	81	55	68	N.W.	N.	16	5	C.	C.	.03
T...20	30.21	51	53	49	97	97	97	N.E.	E.	12	15	R.	R.	.03
F...21	29.51	61	70	52	93	97	95	S.	S.W.	24	12	H.	O.	1.53
S...22	29.90	54	60	47	69	60	64	W.	W.	18	14	C.	C.	
☞	30.11		57	46			81							2.37

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCTOBER 27, 1898.

McINTOSH, W. P., passed assistant surgeon. To rejoin station at Louisville, Ky. October 26, 1898.

STONER, J. B., passed assistant surgeon. To rejoin station at Buffalo, N. Y. October 27, 1898.

GEDDINGS, H. D., passed assistant surgeon. To await orders at Lenoir, N. C. October 27, 1898.

YOUNG, G. B., passed assistant surgeon. To rejoin station at Delaware Breakwater Quarantine, Lewes, Del. October 24, 1898.

STIMPSON, W. G., passed assistant surgeon. To assume temporary command of Service at Memphis, Tenn. October 26, 1898.

EAGER, J. M., passed assistant surgeon. To inspect ports at Brownsville and Corpus Christi, Tex. October 24, 1898. To proceed to Laredo, Tex., for special temporary duty. October 26, 1898.

GARDNER, C. H., passed assistant surgeon. To rejoin station at Baltimore, Md. October 27, 1898.

OAKLEY, J. H., passed assistant surgeon. To proceed to Chattanooga, Tenn., for special temporary duty. October 22, 1898. Upon completion of duties at Chattanooga, Tenn., to rejoin station at Evansville, Ind. October 27, 1898.

COFER, L. E., assistant surgeon. To proceed to San Diego Quarantine, Cal., as inspector. October 27, 1898.

CUMMING, H. S., assistant surgeon. To rejoin station at New York, N. Y. October 27, 1898.

LAVINDER, C. H., assistant surgeon. To proceed to Egmont Key via St. Petersburgh, Fla., for temporary duty. October 27, 1898.

PARKER, H. B., assistant surgeon. Assigned to duty as Sanitary Inspector on the U. S. Transport "Minnewaska." October 24, 1898.

VON EZDORF, R. H., assistant surgeon. Granted leave of absence for fifteen days on account of sickness. October 27, 1898.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, November 7th, at 8 o'clock. The subject of the evening will be "The Treatment of Cleft Palate." The following gentleman will take part in the discussion: Drs. J. C. Warren, C. B. Porter, T. Fillebrown, P. W. Moriarty, H. A. Baker and G. F. Grant.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

RECENT DEATHS.

ARTHUR KEMBLE, M.D., M.M.S.S., died in Salem, October 27, 1898, aged fifty-nine years.

FRANCIS L. HAYNES, M.D., of Los Angeles, Cal., formerly professor of gynecology at the Medical College of the University of Southern California, died recently at Los Angeles. Dr. Haynes was graduated from the Medical Department of the University of Pennsylvania in 1881.

Original Articles.

FATTY DEGENERATION.[1]

BY CHAUNCY REA BURR, M.D. (HARV.), PH.B. (YALE), SAN JOSE, CAL.

It has long been known that fat and urea are formed when albumin disintegrates. Opinions differ and have differed as to whether these are the ultimate or the proximate products of disintegration. Hoppe-Seyler[2] thinks fat is not formed directly from albumin, but that glycogen is formed from albumin and then fat from glycogen. Voit,[3] on the other hand, is quite certain that fat may be formed at once from albumin, and this seemed to be the common opinion.

In order to reconcile the various observations which have been made on the subject, it is necessary to have some sort of a working hypothesis. The writer is inclined to think that a cellular digestive ferment is at the bottom of the change in question; for it occurs normally and in health; it also occurs in disease and even after death. An instance of the normal change is seen in the hepatic cells after a meal, where the fat globules therein are developed *in situ*, and in health from the albuminoid protoplasm of the cell. An instance of the second change is seen in the atheromatous arteries of old age or in fatty degeneration of the heart; while an instance of the third change is seen in the conversion of dead flesh into adipocere.

The liver of the cod if kept for twenty-five days in a damp place becomes fatty according to Davy,[4] while at the same time carbonic acid and ammonia are formed. When urea is heated, ammonia is given off, so that the relation between the two is intimate. Quain has also produced the fatty change in muscle immersed for a sufficient time in accidulated water to delay putrefaction. So that the conversion, after death, of albumin into fat and a nitrogenous substance resembling, if not identical with, urea, seems well established. This cellular digestion after death suggests the corresponding *post-mortem* gastric digestion known as *Gastromalacia*.

The hypothesis admitted of the existence of a cellular digestive ferment which digests albuminoid matter. It is easy to understand why the change into fat occurs in health and disease and even after death.

There must be some special use for fat in the economy to be so constantly formed and under such divers conditions. It is, as is well known, an easily oxidized form of fuel, the products of combustion being, as with all carbonaceous matters, carbonic acid and water. The same is true of glucose. Moreover, glucose and glycogen are muscle foods. Prolonged muscular exercise produces a great increase in the quantity of carbonic acid excreted,[5] but not a corresponding increase in that of urea. As the production of urea and that of fat out of albumin must necessarily bear a certain ratio to each other, the fact that prolonged muscular exercise does not increase the quantity of urea excreted, indicated that the quantity of fat formed from albumin cannot be increased either. The energy manifested must be maintained from some other source. Glycogen is known to be a constant ingredient of muscle; it diminishes during muscular exercise and the supposition is that it is changed into glucose which feeds the cellular protoplasm and is thus the source of energy. A recent experiment by the Prussian war office seems to corroborate this. After prolonged muscular exercise it was found, in the cases examined, that the blood was very poor in sugar and that a sweet draught containing thirty grains of sugar administered at such times had a markedly invigorating effect.[6] Muscular work can also be performed for long periods upon a diet of carbohydrates and fat. So that the conviction has gradually been arrived at that the exhibition of energy within the body is due to the combustion of hydrocarbons, as fats and sugars, and not to that of proteids, as albumin.

It was suggested by Houghton long ago[7] that albumin taken as food splits up into glycogen and urea. The chemical composition of albumin suggests this, and the theory was put forward to explain the formation of glycogen upon a purely albuminoid diet. If this analysis holds good, the synthesis ought to be equally good that glycogen and urea combined make albumin.

It is known that vegetable protoplasm can change starch into sugar and sugar into starch, and it is further known that animal protoplasm can change glycogen into sugar. To complete the simile, it would be necessary to change sugar into glycogen, and there is evidence that this can be done; for a larger quantity of sugar can be injected into the portal vein without reappearing in the urine, than can be injected into the jugular vein; the reason being that the excess of sugar in the portal vein is changed into glycogen and locked up in the liver cells.[8]

The liver, as is well known, is normally full of glycogen, which is formed *in situ* from the sugars brought thither by the portal circulation. It is thus an arrester of sugar, as Pavy has maintained. On the other hand, there is but little doubt that it also has the attribute ascribed to it by Bernard, namely, that of keeping the supply of sugar in the blood constant by transforming glycogen into sugar as required. Furthermore, as glycogen is scarcely present at all in healthy blood, while sugar is, and, on the other hand, glycogen is an almost constant ingredient of cellular protoplasm, while sugar is not, there seems reason to suppose that cellular protoplasm in general as well as hepatic protoplasm in particular has the power to change sugar into glycogen, and glycogen back again into sugar. This process languishes in the absence or insufficient supply of oxygen, for Livierato[9] demonstrated that whereas in infectious fevers without pulmonary complication (for example, typhoid fever), the supply of glycogen in the blood was increased and extracellular, yet in the same class of diseases with pulmonary complication (for example, typhoid pneumonia) the supply of glycogen in the blood was increased and intracellular.

It may not be possible, as yet, to trace the exact connection between glycogen and albumin, but there is every reason to suppose that it is intimate, and of the nature of a chemical compound. Proteid matter is the other form of food required by the living cell.

As peptone, it is taken up by the leucocytes in the blood, and secreted by them in the form of nuclein which specifically nourishes the nuclei and structural

[1] Read before the Santa Clara Medical Association.
[2] Physiol. Chemie.
[3] Zeitschr. f. Biol., v, and Neues Rep. f. Pharmacie, xx.
[4] Williams: Pulmonary Consumption, Phila., 1871, p. 44.
[5] Thompson: Practical Diabetes, New York, 1865, p. 25.
[6] New York Medical Record, October 2, 1877.
[7] Dublin Quarterly Journal, November, 1851, p. 289.
[8] Foster: Physiol., Phila., 1880, p. 493.
[9] Deutsche. Archiv. für klinische Medecin, Leipzig, B. 23, p. 363.

elements of the cells throughout the body. It is thus said to repair tissue waste, while the carbohydrates furnish the fuel for combustion.

Poehl has shown that there is still another factor at work in the maintenance of healthy nutrition. This is a glandular secretion, widely distributed in the body, and found so far in the prostate, thymus and thyroid glands and in the ovaries.[10]

To it he has given the name of *spermin*. Its function, so far as can be determined, is to stimulate intracellular oxidation and consequently cellular respiration. This is shown by an increase in the output of urea and chlorides under its therapeutic use and by the fact that if by any chance the spermin is changed into an insoluble phosphate, the evidences of oxidation cease.[11]

These preliminary remarks may fittingly close by recapitulating the theory upon which the changes, about to be considered, are based.

Fat and urea are the normal products of cellular self-digestion, and are formed directly from the cellular protoplasm. This is nourished by glycogen and nuclein the former of which supplies energy, the latter repairs tissue waste. In addition to these, the secretion of certain glands, to wit, the prostate, thyroid, thymus and ovary, acts as a cellular respiratory food, by stimulating and maintaining intracellular oxidation; such fat as is normally produced from protoplasm is oxidized at the seat of production, while carbonic acid and water as well as urea are excreted by the cell.

This is the normal process, approximately, departures from this process may be as follows:

(1) More glucose, glycogen and nuclein, and less oxygen may be supplied than the cell has need for. More fat is produced than is oxidized and obesity is the result.

(2) Less glucose, glycogen and nuclein are supplied than the cell has need for. There is greater combustion than supply the body wastes and fatty degeneration invades the tissues.

(3) More glucose or glycogen and less nuclein and oxygen than the cell needs is supplied. The cellular protoplasm is not renewed; fat is not produced, the body wastes and a condition of diabetes ensues.

(4) Less glucose or glycogen and more nuclein than the cell needs is supplied. The combustion is greater than the supply; the body wastes and fatty degeneration follows.

(5) Less oxygen is supplied to the cell than it needs. The quantity of glucose or glycogen and nuclein being normal. The production of fat is greater than its consumption, and obesity results.

Under the first heading, namely, supply greater than consumption, come the ordinary cases of obesity. A full diet of mixed foods will ordinarily increase the weight and fat of most individuals, or an increase in any particular article of diet will do it, be it fat, sugar or proteid material.

The fat man, pure and simple, has generally small lungs, kidneys, spleen and lymphatic glands; while the heart, liver, stomach and pancreas are largely developed. This arrangement would naturally suggest that the income of the body would be greater than the outgo, and if the arrangement is congenital an answer is given to the question why obesity runs in families. The small lungs are an index of the deficient oxidation going on within the body. This shows itself in the urine in an excess of uric acid, and hence arises the association so often seen of rheumatism with obesity. The headaches and vertigo of fat people may often be ascribed to the same cause. Glycosuria is also a not infrequent symptom. Seegen reports that out of 140 cases of diabetes, 32 were obese before they were diabetic. Fatty degeneration is often associated with obesity and if the heart is involved symptoms of feeble circulation occur; or if the arteries, atheroma or apoplexies; while if the veins are involved there are hemorrhoids or varicocele. The muscles when invaded by fatty degeneration invite to repose; and the languor so induced operates in a vicious circle to still further lessen intracellular oxidation. Pyrexia in a fat man is rarely high owing to the imperfect oxidation, but it may be none the less serious, owing to the non-radiation of heat through the fatty covering. Finally, the obese are subject periodically to indispositions, induced undoubtedly by disordered digestion. There are catarrhs from the nose and the intestine; and there is often flatulence and constipation.

Under the second heading, namely, greater combustion than supply, must be classed most of the cases of fatty degeneration. Williams[12] remarked years ago that "the excessive excretion of urea is often observed in the same wasting diseases in which fatty degeneration invades the textures." It has been shown that the spermin of Poehl is a constant ingredient of the normal body; that it is derived from the secretions of certain glands; that its function is to increase intracellular oxidation, which is indicated by an increased output of urea. An increase in this secretion should cause an increased combustion of albuminoid tissue, which, if not replaced as fast as consumed, would inevitably be followed by wasting; while a decrease in the secretion would be followed by suboxidation and an increase in weight. It must often have struck the clinical observer as an anomaly, that in cases of pulmonary tuberculosis, where the area of healthy lung as well as the quantity of oxygen inhaled was very limited, the patient lost flesh instead of gaining it. According to current teaching, the crippled lung and anemic blood ought to give rise to a state of suboxidation, with increase of adipose tissue. But does it? On the contrary, there is every sign of superoxidation. The body wastes, and the output of urea is increased. Poehl's discovery partly explains this. Spermin increases intracellular oxidation; intracellular oxidation is increased in phthisis. It would perhaps be premature to say that spermin is the cause of this increase, but not premature to say that some irritant of similar action is at work. Just how it acts is not perfectly clear, whether by increasing cellular respiration, in which case there should be a sufficient supply of oxygen in the blood without the cell, to draw on, or by setting free the oxygen from its union with other elements in the protaplasm itself. In pulmonary cases, the quantity of oxygen available in the blood is very limited. Any increase, therefore, in intracellular oxidation, or even in the maintenance of ordinary oxidation, must be at the expense of the oxygen increment of the cellular protoplasm. This disintegrates, giving rise to urea and fat; which latter may or may not be, thoroughly oxidized, probably not; and fatty degener-

[10] Zeitschrift für klinische Medicin, Berlin, Bd. 26, Ht. 12, 1895.
[11] Wratsch, St. Petersburg, No. 49, 1896.
[12] Pulmonary Consumption, Phila., 1871, p. 44.

ation is established. It must also be remembered that the researches of Livierato, already alluded to, seem to indicate that the change of glycogen into albumin does not occur in the absence or deficiency of oxygen. In pulmonary cases there is a deficiency of oxygen, and it would naturally be inferred that the change alluded to does not occur. Be this as it may, in fatty degeneration the cellular albumin is often unreplaced and permanent atrophy remains. Fatty degeneration would thus seem to arise in a state of increased need for oxygen, which in the end is taken from the cellular protoplasm, rather than from the atmospheric air. This is the view of Binz and Schultz [13] who hold that the cells, in their avidity for oxygen, take it from the blood so long as this will part with it. When it ceases to do so the cases attack each other, and act as mutual reducing agents. It could thus only occur in anemic or pulmonary cases, and such seems to be the clinical fact.

Poehl claims to have found his spermin in the thyroid gland. From other sources [14] comes the information that the thyroid gland secretes a substance capable of decomposing or neutralizing toxic substances developed by tissue change within the body. This substance when injected into the body of an animal appears to be first stimulating, then paralyzing. If the dose is not large enough to produce death, emaciation ensues. This is evidence that the thyroid gland has a far-reaching effect on the growth and preservation of the organism. An excess of the thyroid secretion is thought to exist in exophthalmic goitre; it is deficient in myxœdema; it is absent in cretinism. In the first there is superoxidation, in the second, suboxidation, in the third, lack of development. There is, therefore, probably more than coincidence in the fact that the thyroid and the body both increase in size at the age of puberty; that the plumpness of the child gives way to the brawn of the man, and that in turn as the climacteric is reached, the voice becomes higher pitched, the thyroid atrophies and the obesity of advanced middle age appears. The same condition is seen in eunuchs and in women after the menopause. While speaking of the thyroid gland, the writer would observe that in two cases of pulmonary tuberculosis, recently under his care, there were many of the signs of exophthalmic goitre, including a slight but distinct enlargement of the thyroid gland. While in a genuine case of exophthalmic goitre, there was a marked tuberculous inheritance. Durdufi has found in the normal thyroid a substance analogous to cocaine. This, as is well known, specifically paralyzes the pneumogastric nerve. The writer has pointed out in a previous article [15] that in most cases of pulmonary tuberculosis the pneumogastric nerve is paretic. It is interesting to note that precisely the same set of symptoms occur in exophthalmic goitre without the presence of tubercle bacilli, so far as known. There is the diminished respiratory expansion, the tachycardia, the tremor, the sweating, the lessened electrical resistance of the body. If Durdufi's discovery is confirmed, it would appear that in exophthalmic goitre, as well as in pulmonary tuberculosis, there is a neuritis of the pneumogastric nerve, caused by a substance analogous to cocaine secreted by an ever-active thyroid gland, and that such cases of exophthalmic goitre offer a peculiarly tempting soil for the growth of the tubercle bacillus.

Under the third heading come cases of glycosuria and diabetes. As previously remarked, obesity often precedes diabetes. There is lack of oxygen within and without the cell. This is the keynote of the condition. Purdy has shown [16] that the disease is least fatal in low altitudes and particularly at sea-level; that is, at the point where the supply of atmospheric oxygen is greatest; that it rages more among those who live much within doors than among those who are much abroad. The fat man is handicapped by his small lungs which, together with his large liver, render it difficult for him to draw a full breath. If to this is added feeble cellular respiration with impairment of intracellular oxidation, glycogen is not transformed into albumin, nor glucose into glycogen,[17] sugar passes unchecked through the paretic liver and appears in the urine. The albumin which changes into fat is not replaced, and emaciation ensues. Of course, there are various grades of the condition, and many cases are not preceded by obesity. These it is not the purpose of the present paper to discuss.

The conditions which obtain under the fourth heading are much the same as those grouped under the second; the only difference being in the quantity of nuclein supplied to the tissues. If nuclein is the secretion of the leucocyte, it is evident that in a condition of leucocytosis, the total quantity of nuclein present in the tissues must be increased. This condition is found in infectious diseases. The pyrexia, which is present, interferes with the proper digestion of food, so that an insufficient supply of glycogen is furnished, while the increased secretion of nuclein stimulates the cells to increased intracellular oxidation. So long as the hemoglobin can furnish oxygen in sufficient quantities to satisfy this demand, all may still be well, but let the supply of oxygen fail and anemia and fatty degeneration result.

The last heading includes cases of obesity associated with anemia or loss of blood, as well as those of alcoholism. Mitchell narrates [18] that it used to be well known that some people grew fat when bled at intervals; also that cattle breeders occasionally bleed their cattle to increase the quantity of fat in the tissues or of cream in the milk. It has also been suggested by another writer that the plumpness of the female sex, as a whole, has much to do with the monthly abstraction of small quantities of blood in the catamenial flow. With what has already been said, it is easy to understand the *rationale* of the condition. The oxygen carriers of the blood being lessened in number by constant withdrawal, less oxygen is absorbed and less oxidation effected in the tissues. Fat is produced, but not consumed. The same effect is produced by the excessive use of alcohol, though the mode is different. Alcohol in some way, not clearly understood, binds the oxygen more firmly to the hemoglobin than is natural. The consequence is that it gives it up with difficulty; the tissues receive less oxygen than they require, fat accumulates, and if the need of oxygen increases fatty degeneration occurs.

The treatment of obesity should be partly dietetic and partly medicinal. Most persons, as well as most fat persons, eat too much. The chylopoetic vessels are in a state of constant engorgement in the effort to

[13] Arch. f. exper. Path., vol. xiv.
[14] Notkins: Wiener medizinische Woch., Nos. 19 and 20, 1895.
[15] The Tuberculous Diathesis, Boston Medical and Surgical Journal, November 26, 1896.
[16] Diabetes, Phila., 1880, p. 107.
[17] Spitzer: Archiv. für die Gesammte Physiologie, Bonn, B. 60.
[18] Fat and Blood, Phila., 1877, p. 18.

handle this excess of food. Physiological engorgement may in time become pathological congestion, whence results an insufficient liver or pancreas, faulty digestion, the production of leucomaines and auto-intoxication. The patient should eat less. His fondness for sweets and starchy foods must be held in check. These articles need not be entirely interdicted, but they must be limited in amount. So, also, must be the amount of fluids ingested. On the contrary, if the heart will stand the strain, Turkish baths, with massage, may be taken *ad libitum*, even as often as once a day. As the patient begins to lose flesh and is able, he should add active exercise to his *régime*, at first horseback riding, later, walking or the bicycle. Some in addition use belts or corsets on the principle that pressure makes atrophy. The modern medicinal treatment of obesity is practically limited to one substance, namely, the extract of the thyroid gland. There is quite a consensus of opinion as to its value, the loss of flesh is marked in nearly all cases. It must be remembered that it contains an alkaloid similar in action to cocaine, and the heart consequently is to be watched.

The treatment of fatty degeneration must be on other lines. Here there is superoxidation. This can be checked to some extent by the use of caffein. In acute cases alcohol, also, is of service, and chalybeates are indicated. The diet should be rich in proteids as well as in carbohydrates, while exercise, massage and electricity are useful adjuncts. The writer has also seen excellent results from the use of cod-liver oil combined with dilute phosphoric acid and a bitter stomachic, such as the tincture of bitter orange or hops.

THE WILLIAMS MURDER TRIAL.[1]

BY H. K. FOSTER, M.D., PEABODY,
Medical Examiner.

THE two principal actors in the tragedy known as the Williams murder were, first, John Gallo, an Italian laborer, twenty-four years of age, who had lived in America only a few years, and who could speak English only to a very limited extent, and Alfred C. Williams, the supposed murderer of Gallo. The latter had been employed for about a year at the farm of W. W. Phillips, at Lynnfield Center, as a farm-hand, assisting at the barn in caring for the stock and doing the work of an ordinary farm-laborer in the fields. Williams was a native of Prince Edward's Island, a young man apparently about twenty-five years of age, of medium height, light complexion, athletic figure, clean shaven and altogether in appearance a neat and inoffensive young man, having a large full eye, and a face free from the ugly, dark, vindictive, quarrelsome look often seen on the faces of criminals. He was a man who would impress one as being vain about his personal appearance and achievements. He had been employed at a variety of places in Lynnfield and Wakefield during the year previous to his arrest, and a portion of the time had been employed at the Phillips Farm, and had worked with John Gallo doing work in the fields, and assisting at the stable in caring for the horses, and during the time that he worked on the farm had occupied a room in the upper part of the stable.

[1] Read before the Massachusetts Medico-Legal Society, June 7, 1898.

On the morning of July 28, 1897, it was reported to me by telephone from Lynnfield Center, that there had been a fire at the Phillips Farm and that a small house had been burned and a man had been burned in the house. I drove to Lynnfield as soon as I received the message, arriving there about 10.30 A. M. of the 28th, and while the ruins of the house were still smouldering.

The buildings on the Phillips Farm are situated near the road running from Lynnfield Center to Wakefield, and are not remote from other farm buildings scattered along the same frequented street. They are upon a nearly level tract of land, and consist of a large, old-fashioned, but remodelled farm-house occupied by Mr. Gray, the foreman of the farm, and his family, and members of the Phillips family whenever they choose to come there.

Back of the house there are two large barns, one used for the cattle, and the other barn or stable is used for the horses and carriages, and about ten or fifteen rods still farther back from the stable there was a small, two-room cottage, consisting of a one-story pitch-roof building about ten feet square, having a door opening into it on one side, and a window on the opposite side, and on the end of this building toward the stable there was a lean-to about eight feet by ten feet, having a door to enter it from the main room, and one window covered with wire-netting nailed upon the outside of the window-frame. This building was built close to a cart-path which ran back into the cultivated fields. This lane ran from the street at right angles, past the side of the house, straight along by the side of the stable, down past the hut which was burned, and then back into the fields. This lane was fenced upon both sides and the Italian's house formed a portion of the fencing upon one side, and was entered by a door opening directly into it from the lane.

The Italian, Gallo, occupied this hut alone, and did his own cooking, a part of the time upon the cooking-stove in the larger room of the cottage, and a part of the time near the stone wall upon the opposite side of the lane. He slept alone in the lean-to of the cottage and very seldom went away from the farm or had any one come to visit him, worked hard all day, was industrious, quiet and inoffensive in every way, without an enemy in the world, so far as appeared from the trial of the case. He was paid his wages every month at the rate of one dollar and a half per day for every working-day, and always in five-dollar bills as far as possible, Mr. Gray, his employer, drawing the money in five-dollar bills from a bank in Wakefield, upon a check sent him every month by Mr. Phillips. It also appeared during the course of the trial, that he had three twenty-dollar gold pieces in his possession when he came to work at the farm; these had been paid him by a contractor at Swampscott for work done while in his employ. These gold pieces and from seventy-five to one hundred dollars in five-dollar bills, he was supposed to have had in or about his cottage at the time of the fire.

When I arrived at the scene of the fire, there was not a single piece of wood belonging to the hut in sight; all the wooden parts of the building were entirely destroyed. There was no cellar to the building and the stones around the outside of the building, upon which the sills had rested, marked the outside of the ground-floor. The entire surface within these foundation-stones was strewn with hot ashes and about

in the centre, from end to end, and on the side farthest away from the lane were the remains of a human being, but so charred, and so nearly consumed, that it required a second examination to satisfy one's self that they were human remains. The head and neck were gone, both arms and both legs were entirely consumed, bones and all. The spinal column and the shrivelled and charred muscles of the back and some of the viscera, charred and contracted beyond recognition, alone were seen.

The remains were given in charge of a Wakefield undertaker and on the following day, Dr. J. W. Heath, of Wakefield, and myself, looked them over thoroughly. The dorsal and lumbar vertebra were intact, the deeper muscles of the back were still to be made out, although thoroughly cooked, and covered with charred flesh, and contracted so as to cause marked arching of the spine. The ribs were all gone, except about three inches on each side of the spinal column. The lungs could not be made out at all. The heart, very much charred, could be seen and the liver and kidneys could be made out; but the other viscera were consumed except the bladder, which contained a small amount of urine; the pelvic bones and sexual organs were entirely gone. All the medical evidence, therefore, that we could furnish in the case was, that it was the body of an adult human being.

To return to the scene of the fire, the foundation-stones indicated that there had been a building there, about eighteen or twenty feet long, by about eight or ten feet wide, extending parallel with the lane. The spiral springs of a bed were to be seen in the corner nearest the stable and nearest the lane, an iron water-pipe and iron sink were found a little farther along on the side next to the lane; and on the farther end, about half-way from side to side, was the small cooking-stove and the fallen bricks of a chimney. Beyond the bed-springs and near the remains of the body, was a tin can such as is generally used for kerosene oil.

At first sight, it would appear as if there was very little evidence in such a case, except of a fire in the night, which destroyed a house and its single occupant, but upon investigation, it appeared:

(1) That the body was consumed to a greater extent than we should expect from the burning of so small a building, the fleshy portions of the thighs, and the large bones, composing the hip-joints, being entirely consumed.

(2) That the occupant of the house was not burned in his bed, as his remains were some feet away from where the bed-springs were to be seen.

(3) That a kerosene oil can was in the middle of the floor of the bedroom and close beside the body.

(4) That the victim of the burning was not clothed at the time of the burning as the buckles and buttons of his clothes and some coins and the clasp of a pocket-book were found by the side of the bed-springs and none were found near where the body lay.

(5) That the body lay in the doorway leading out of the bedroom with the head back in the room toward the bed, and not falling forward as a person would naturally fall if trying to escape from a burning room or building, and it was shown by several witnesses, that the fire was first started in the sleeping-room near the bed.

There was quite a group of men standing near the scene of the fire, none of whom were known to me; but apparently they were known to each other, and as I was about to leave the place, after learning what I could about the fire, a young man, who, as I afterwards learned, was Alfred C. Williams, related to the group of men standing there, that he was "held up" the night before. He said that he was alone in his room where he was boarding at Wakefield and feeling rather uneasy, he lighted a cigar and walked out on the road, near the Wakefield Pond, and while standing there with one foot upon the rail fence, he was suddenly and without the least warning, struck upon the head from behind. He said he thought he had better be doing something to defend himself, so he struck his assailant, the first blow striking him upon the nose, causing it to bleed. The second blow knocked his assailant down, he sprang upon him and was getting the best of him, when he was struck upon the head, by some second person not seen by him before, and was then thrown down a bank several feet near the water's edge. He showed us the bruises upon his head, finger-marks upon the throat, and a great many blood-stains upon his clothing, especially upon the sleeves of his coat. There had evidently been an effort to wash or wipe away most of the blood-stains. One finger had a cut upon it, and he said his assailant chewed that; he had abrasions upon the hands, caused, he said, by striking his assailant. He said that he lay unconscious upon the shore of Wakefield Pond from about midnight until about four o'clock in the morning of July 28th when he found himself lying with one arm in the water. He then made his way alone to his boarding-place in Wakefield. [The fire in the shanty at Lynnfield was discovered about the same time that Williams said that he came to himself upon the shore of Wakefield Pond, about a mile away.] He went with a companion to the Chief-of-Police of Wakefield, getting him out of his bed, and told him the story of his hold-up, and showed him his bruises. He told the same story to several different persons during the morning, and then started for the scene of the fire at Lynnfield — making two or three calls upon the way. One of his acquaintances, after hearing his story of the hold-up, asked him if he had heard of the fire at Lynnfield, and he replied, "No." His acquaintance then told him that the Italian's hut at Phillip's Farm was burned, and that the Italian was burned in it, and he then asked if he was all burned up.

State-Officer Neal and the Chief-of-Police of Wakefield thought best, upon the evidence, to investigate the alleged "hold-up," and detained Williams at the Wakefield Police Station, and by searching his person, they found about seventy-five dollars in five-dollar bills upon his person, and it was shown during the trial, that he had spent several dollars that morning, paying back-pay upon his board bill, and making some purchases. It was also shown that upon the previous day, July 27th, he had not money enough to buy a meal, or pay a five-cent fare upon the cars. And upon searching his room at Wakefield, two twenty-dollar gold pieces were found under the carpet in a corner of the room, and a commode was placed over the spot where they were found. Upon being questioned where he obtained the money, he said at first, that he received it by registered letter, from his brother, but when he was told by the officer that his brother would not send bills in a registered letter, but would send a check, or post-office order, and that they could find out at the post-office if a

registered letter was really sent, he then said that he found it wrapped up in a pocket-handkerchief, lying upon the sidewalk, near the place where he was assaulted.

It was shown during the course of the trial, that there were no signs of an encounter, no blood-marks, and no unusual tracks upon the sidewalk where Williams claimed he was assaulted and robbed, and there were no signs upon the shore of the lake, that a person had lain there in an unconscious and bleeding condition.

The attorneys for the prosecution argued, from the evidence presented, that Alfred C. Williams was entirely out of money, had no work and he was very anxious to get money to pay his bills and to go with some friends to the Klondike. And it appeared that he told his friends that he could get the money. The theory of the Commonwealth was that he left his room at Wakefield on the night of July 27th at about midnight, walked to the Italian's cottage to get the money which he believed was there, that he was discovered and perhaps recognized by Gallo, and in the fight in the dark, as he supposed, for his life, he killed Gallo, probably by stabbing. Then to cover the crime, after he had obtained the money, he saturated the body with kerosene oil, left the can beside the body, set fire to the room, and escaped by a back window, as the door was found locked on the inside. He then ran through the fields where the tracks of a man running could be traced and came out at the Wakefield Pond about four o'clock in the morning. Here he tried to remove the blood-stains from his clothing by washing. He then thought out the "hold-up" story, left his cap there, walked to his boarding-house where he appeared shortly after four o'clock, hot, flushed and sweaty, as a man would after such a lively run, and not weak, pale, haggard and sick, as a man would after lying unconscious by the roadside for four hours from a blow upon the head.

The principal arguments for the defence were:

(1) That it could not be proved that John Gallo was really dead or that the charred remains were not, or might not be, the remains of some other person.

(2) That there was no evidence to show that Gallo was killed before the burning occurred, granting that the remains found were actually his.

(3) That Williams was not located near the scene of the fire at any time during the night.

As a closing argument at the end of a trial which lasted four days, the Attorney-General drew a most vivid and convincing picture of the whole transaction and after a short conference, the jury brought in a verdict of murder in the first degree, which was, I believe, in accordance with the evidence, and with the almost unanimous opinion of those who heard the evidence.

The case was tried about the tenth of February and Williams is now in Salem Jail awaiting sentence, which has been deferred pending some decisions of the Supreme Court upon exceptions presented by the defence.

Many lawyers claimed that it would be very difficult to convict on account of the body being so nearly destroyed, that the manner and the cause of death could not be made out.

DR. ROSWELL PARK, of Buffalo, N. Y., has just been elected a member of the Italian Society of Surgery.

TWO CASES OF ADIPOCERE; ONE OCCURRING UNDER REMARKABLE CIRCUMSTANCES.

BY LOUIS J. MITCHELL, M.D.,
Late Coroner's Physician, Chicago, Ill.

CASE I. In April, 1893, a Chicago policeman caused some excitement by announcing that he had found a petrified woman in the lake. The remains were taken to the morgue, and found to consist of the spinal column from the ninth thoracic vertebra, the pelvis and both femora partly covered with flesh which had been converted into adipocere. The remains were found on the lake shore and the lower end of each femur was very much eroded by the sand, as may be seen from the photograph. The external genitals had disappeared leaving an opening with a rough resemblance to a vulva; however, on opening the body no



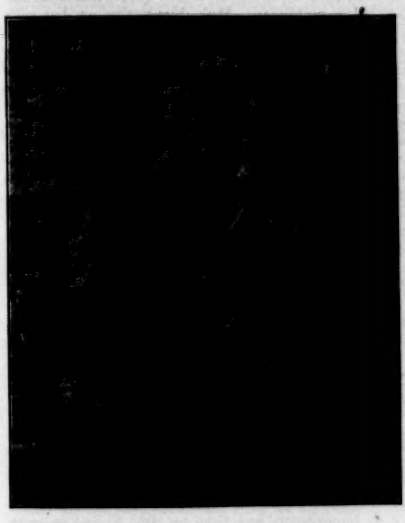
uterus was found and a prostate gland was present. The bladder contained urine and the bowels semi-solid feces.

The rest of the body was never found, which is not surprising, for the locality was desolate and only sparsely settled. The adipocere was much harder than in the next case, the best comparison which occurs to the writer is the rind of an Edam cheese. Of course, the length of time the body had remained in the water is unknown; Fourcroy's and Devergie's estimates have been shown to be too high, and Mackenzie in his "Medico-Legal Experience in Calcutta," states that he has seen saponification occur in from three to fifteen days.

CASE II. On February 16, 1893, a large box marked "Household Goods" arrived in Chicago from Salt Lake City. The address was 166 Jefferson St., but nobody there knew anything of the consignee. The box was kept in the company's freighthouse until June 25th, and then removed to a storage warehouse. Here it remained until March 25, 1896, when it was

sold at auction with other unclaimed freight. Two men who made a business of buying unclaimed freight, secured the box for $14.50, thinking it held a stove on account of the weight. On taking their purchase home they were disconcerted to find the contents to be a dead body. The box and contents were removed to the morgue and examined.

The outer case was a pine packing box 30 by 30 by 44 inches, bound with strap iron. Inside this was a common zinc-covered trunk, with the trays and partitions removed. The space between the trunk and the packing box was filled with sawdust, and the box itself was lined with oil-cloth such as is used for covering tables. Inside the trunk, fitting snugly, was a zinc case 32 by 22 by 18 inches, and in this was the body. The edges of the zinc case had been soldered down, but in a bungling manner; instead of a continuous joint



solder had been dropped on every inch or so, making a very poor job.

The body had the legs flexed strongly on the thighs and these on the trunk, and they had been kept thus so long that it was impossible to straighten them out. For the same reason the soft parts of the nose had been pushed into the nares as may be seen from the photograph. A one-half inch rope was fastened about the knees and neck, keeping them together; the head bent on the chest. The ammoniacal odor was simply intolerable, and the persons who first saw the body, believed it to be chloride of lime. Nothing else was found in the zinc box save a Turkish towel and a hard object, which, on being washed, proved to be part of a truss.

For the reason just mentioned the body could not be measured accurately, the approximate height was five feet and six inches, the weight 146 pounds. From the condition of the teeth and sutures the age was estimated at from thirty to thirty-five years. Two fractures of the skull were found, one in the left occipital region was round, one inch in diameter with the bone partly depressed; the other in left parietal region was one and one-quarter by one inch, the bone here was depressed one-half inch. The brain was semi-solid, the viscera were in a fair state of preservation though brittle, an epiplocele was found on the right side with the omentum still in place. The skin and subcutaneous tissue for nearly one-half inch were soft and slimy, the rest of the flesh was solid, cutting like firm cheese. The teeth were all sound and in good condition, no fillings (while moving the body the two upper incisors fell out and are not shown in the picture). The hair was dark brown, straight, and of medium length.

The humorous aspect of the case is furnished by the verdict of the coroner's jury. The remains were thought to be those of several persons, some of whom were found living, the choice finally narrowed to two — Prosper Chazal and Oliver Pike. The former was a saloon-keeper in Salt Lake City (whence the body came), was last seen alive February 1, 1893, he was nearly thirty-five years old, had a hernia on the right, his teeth were perfect and his hair corresponded with that found on the body. Oliver Pike disappeared from Seattle, Wash., he was twenty-nine years old, also had a hernia on the right, and his hair and teeth corresponded with those of the corpse.

At the inquest it was proven that Pike was seen alive after the trunk was shipped, yet the body was declared to be that of Oliver Pike, handed over to his relatives and is now buried at Fayette, O. Chazal's friends were of course unable to positively identify the remains, while Pike's relatives did so — a rather difficult thing to do as evinced by the photograph. It is scarcely necessary to add that Pike was discovered during the summer of 1897, living in Redlands, Cal.

Clinical Department.

A CASE OF PUERPERAL FEVER TREATED WITH ANTISTREPTOCOCCIC SERUM. RECOVERY.[1]

BY C. HARLE WILLIAMS, M.D., BOSTON.

Mrs. F. B. was a primipara twenty years of age. Was delivered March 8th of a large male child with instruments. Right occipito-posterior position. There was a laceration of the perineum reaching to the sphincter ani which was repaired at the time, also considerable post-partum hemorrhage. The strictest antiseptic precautions were used.

March 9th. Temperature and pulse normal.

March 10th. Temperature 100°, pulse 100.

March 11th. Had a rigor followed by a rise in temperature to 102.6°, with pulse 120. Mammæ soft and full of milk. Lochia slight but odorless. Gave an intrauterine douche of corrosive 1 to 4,000, followed by a weak creolin solution.

March 12th. Passed a sleepless night. Temperature 102.5°, pulse 130. Vagina hot and dry. Lochia very slight, although no odor, face looking pinched and anxious, sordid tongue and teeth. Was given corrosive douche followed by weak creolin twice in the day with acetanilide as an antipyretic. Tempera-

[1] Read before the Obstetrical Society of Boston, April 19, 1898.

ture in evening 102.6°, pulse 130, very restless. Removed stitches from perineum. No pus or membrane.

March 13th. Passed bad night; symptoms exaggerated with hurried respiration. Temperature 104.6°, pulse 140. Corrosive douche in morning. Called Dr. C. W. Townsend in consultation the same evening, who very thoroughly curetted her without finding any placental tissue or *débris*. He then gave a very grave prognosis. Temperature four hours later 104.6°, pulse 140.

March 14th. Was called at 7 A. M., found patient very much worse. Temperature 105°, pulse 150. Respiration 48; vomiting, diarrhea; hectic and sweats; intense thirst. Was delirious with intervals of complete consciousness. Tympanites and jaundice present; decided to try the antistreptococcic serum. Obtained twenty cubic centimetres of John T. Milliken & Co., St. Louis make, Formula Fisch., which we injected into the buttocks at 11 P. M., the symptoms being slightly worse than the morning.

March 15th. Symptoms greatly ameliorated. Temperature 102°, pulse 130, respiration much easier, patient looking better; no delirium; vomiting, diarrhea and sweats diminished. Intrauterine douche. Evening, improvement still continued.

March 16th. Not so well as previous evening. Temperature 103.2°, pulse 130. Tympanites and jaundice increased, although diarrhea and vomiting were no worse. Respiration again hurried. Decided to use serum again. Found it impossible to obtain the same make of serum at this time, so injected twenty-five cubic centimetres of Gibier's at 9 P. M., with uterine douche.

March 17th, 11 A. M. Patient worse. Temperature 104°, pulse 140, respiration more rapid, sweats and hectic reappearing; diarrhea and vomiting worse; no delirium.

March 18th. Patient practically same as previous day, with symptoms slightly exaggerated. Injected twenty cubic centimetres of Milliken's serum at 9 P. M.

March 19th, 9 A. M. Patient greatly improved. Temperature 102°, pulse 132, respiration 26, vomiting has completely ceased; diarrhea diminished; no sweats; face not looking so pinched and anxious; tympanites and jaundice better.

March 20th. Temperature 102.5°, pulse 130. General condition same as on 19th. At 9 P. M., injected twenty cubic centimetres more of Milliken's serum.

March 21st. Temperature 100°, pulse 116. Symptoms much better. From this out the patient made an uninterrupted recovery.

In conclusion, I will state that there was no local trouble, the manifestation of the disease being entirely systemic. Following three of the injections, there was a remarkable improvement in the symptoms which was not noticeable after the second injection, which may possibly be due to its being of a different make. Different nourishment, together with stimulants, champagne and brandy, were pushed to the utmost from the first. Strychnine, strophanthus and quinine were also pushed to tolerance and she had excellent nursing throughout.

DEATH AT THE AGE OF 125 YEARS. — Pardo Lucero, whose age, as shown by the records of the missions of Los Angeles and Soleda, was 125 years, died at the county hospital, San Francisco, October 25th.

A CASE OF PUERPERAL SEPSIS SUCCESSFULLY TREATED BY ANTISTREPTOCOCCIC SERUM.[1]

BY T. H. O'CONNOR, M.D., BOSTON.

MRS. H., age twenty-two years, previous history good, slight in stature, occupation housewife, primipara.

December 30th. After a tedious labor of thirty hours was delivered under anesthesia, by internal version, of a male child which occupied R. O. P. position. All secundines were removed and a two-per-cent. lysol intrauterine douche given. Perineum was ruptured to sphincter, immediately repaired. On the evening of December 31st (2d day) found patient restless, having severe headache, temperature 100° F. and pulse 120. Gave vaginal douche, bichloride 1–2,000.

January 1st (3d day). In morning temperature had reached 102° F., pulse remaining at 120. The night had been sleepless and disturbed by severe headache and pain below umbilicus. Milk flow beginning, but very slight. Urine shows albumin. Vaginal douche given as before, which afforded temporary relief. Condition continued thus, temperature and pulse remaining same, until morning of January 3d (5th day), when severe rigor occurred. A few hours later temperature had reached 102.5° F., there was anxious expression about face, profuse sweating, rapid respiration (38) and abdominal pain had ceased. The sutures in perineum were removed and small pocket of pus found in tracks of the tear. Vaginal douche given. In evening temperature had dropped to 101° F., pulse and other symptoms continued same as in the morning. In addition the lochia which remained free was offensive in odor and milk flow was retarded. Intrauterine douche, bichloride 1–4,000 given.

January 4th (6th day). Had violent vomiting during the night, milk flow stopped, temperature had risen to 103.5° F. Pulse remained at 120; there is a grayish deposit on surfaces of tear. General condition very bad. Improvement in temperature followed the use of intrauterine douche, it falling to 101° F., in evening.

January 5th (7th day). Lochia arrested, vomited incessantly during night and slight diarrhea set in during early morning. At 10 A. M., temperature at 102.5° and pulse 120, injected 20 c. c. Mamorek's Pasteur Institute serum in right side of abdomen. At 9 P. M. temperature had risen to 103° F. and pulse to 132; patient complaining of faintness for the first time during her illness.

January 6th (8th day). Ten A. M., temperature has dropped to 100.6° F., pulse to 96, no vomiting during the night and retained beef-juice and claret and slept from 5 to 8 A. M. the first time for a week. Temperature returned to 102° F. and pulse to 120 in evening.

January 7th (9th day). The diarrhea became very severe as day progressed, being almost continuous. At evening the temperature had increased to 104° F. and pulse to 132. All through the day she had been able to take claret and milk.

January 8th (10th day). Ten A. M., temperature 103° F., pulse 120, again injected 20 c. c. of the serum as before. This was followed again by rise in temperature to 104° F. and pulse to 132 in the evening, faintness associated as before; diarrhea continued, but less frequent.

January 9th (11th day). Ten A. M., temperature 100° F., pulse 90; grayish deposit upon torn surface

[1] Read before the Obstetrical Society of Boston, April 19, 1898.

of perineum has disappeared, headache and vomiting have ceased, respiration has decreased to 24, diarrhea slight, anxious expression has disappeared from face. In evening temperature and pulse were same as in the morning. She has been able to take milk, egg and claret during the day.

January 10th (12th day). Temperature normal, pulse 80, for the first time since the second day and one hundred and twenty hours since the first injection of serum, during which time 40 c.c. had been given. The temperature continued to fluctuate between normal and 100.5° F. until January 15th, after which date it remained at normal and the patient made a rapid convalescence. In addition to the serum injections, the treatment consisted of intrauterine douches of bichloride 1–4,000 twice daily, quinia sulph. two grains every two hours, and peptomangan one-half ounce in milk every four hours. The claret was given because of patient's objection to stronger stimulants. No local effect followed the injections of serum, but a depressed feeling and a marked rise in temperature occurred twelve hours after, followed by buoyancy of spirits and a decided drop in temperature in twenty-four hours. While regretting that a microscopic examination had not been made, yet I think the course and symptoms warrant the diagnosis of streptococcus infection.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BOSTON.

(Concluded from No. 18, p. 446.)

Muratow[12] has studied the pathogenesis of the focal symptoms of general paralysis in 123 cases, with autopsies. In all his cases he found a diffuse periencephalitis, with atrophy of the cortex and changes in the archnoid and ependyma. In addition, he found other changes, which may be classed as follows:

(1) Focal lesions due to atheroma (hemorrhage, softening, etc.)

(2) Inflammation of the dura with hemorrhage (pachymeningitis, interna hemorrhagica.)

(3) Chance complications, such as atrophy of the cerebellum.

Under the first group he found four cases where the focal lesion had preceded the general paralysis, and the apoplectic seizures noted in the whole series of cases had no relation to the changes found in these four cases. Eight cases showed inflammation of the dura, but in these the epileptiform attacks were no commoner than in the other cases. He concludes that every diseased region of the cortex acts as a circumscribed focus, causing symptoms of deficit and exerting distant action through secondary degenerations. The focal symptoms and general symptoms, weakness of association, delusions and dementia may be thus explained. He agrees with Nissl and Weigert that the primary process is a parenchymatous change in the nerve cells, but disease of the connective tissue, the membranes, or the ependyma and disturbances of the circulation may favor the progress of degenerative processes. Neuritis and tabes may also complicate the conditions.

[12] Monatschrift für Psych. und Neurol., January, 1898.

KATATONIA.

The question whether katatonia is to be regarded as a group of symptoms or an independent disease has recently been the subject of much discussion. Schüle[13] recognizes six forms:

(1) Status attonitus — a state of generalized muscular rigidity with a fixed aspect of the face and sialorrhea.

(2) Slight degrees of the same state with stereotyped attitudes which may be influenced by suggestion. These spasms may be general or localized.

(3) Gesticulations of insistent form.

(4) Combined tonic and clonic spasms.

(5) Alternating forms where the stereotyped expressions of anxiety, pleasure, etc., succeed each other.

(6) Apparently voluntary irresponsible movements and paradoxical movements.

He notes the frequency of verbigeration and mutism. These various motor symptoms may be the consequence of hallucinations and troubles of sensibility. The motor neurosis may be absolutely spontaneous, especially in certain states of stupor. Status attonitus belongs to a third type, where the nature of the disturbance of innervation is still obscure, for we cannot discover whether there is a simple neurotic trouble, an organic muscular contracture or an attitude having a psychical motive. The various motor symptoms are very often combined. The troubles of consciousness are also variable, multiform and changing and may exist in all degrees. The physical symptoms consist of elevation of temperature in the periods of excitement, sub-paresis, vasomotor troubles, ocular troubles, ptyalism, sweating, hyperesthesia, lack of nutrition and sitophobia. He thinks that these states may be met with in the course of acute or sub-acute paranoia, especially in the hysterical and at the menstrual period, in chronic paranoia, in cases accompanied by sexual disturbances, in the states of stupor and in certain forms of mania with profound physical disturbance, in circular stupor and in true melancholia. He cannot admit that there is a true katatonia as an independent disease. The grave form, ending in dementia, is closely akin to primary dementia, the milder form to hysterical insanity.

Aschaffenberg[14] has also studied the question and thinks that katatonia and hebephrenia should be classed together under the term of "dementia precox," an affection developing most frequently in youth and which immediately, or after more or less complete remissions, terminates fatally by a characteristic intellectual enfeeblement. He dwells especially upon the diagnosis of dementia precox. We note at the beginning of the disease the remains of a previous intelligence which distinguishes it from imbecility. The katatonic symptoms may eliminate imbecility and idiocy. The diagnosis from general paralysis may be difficult. The ocular symptoms are characteristic of general paralysis. The disturbances of memory begin earlier in paralysis than in dementia precox. The diagnosis from periodical insanity is important. The two affections may begin at the same age. In dementia the handwriting is irregular, differing from the slow and ill-traced handwriting of melancholia. The immobility of melancholia is due to inhibition, in dementia to negativism. The flow of ideas and special language of mania differ

[13] Allgem. Zeitschrift für Psych., liv, 518.

[14] Loc. cit., liv, 1004.

in variety, rapidity and tendency to rhyme and pun from the stereotyped verbigeration of dementia.

Peterson and Langdon [15] have, in this country, discussed these conditions and have concluded that katatonia is not a distinct form of insanity, a clinical entity; that there is no true cyclical character in its manifestations, hence it cannot properly be classed as a form of circular insanity, but that it is simply a type of melancholia. It is not desirable, therefore, to retain the name, but we may use the term katatonic melancholia or the katatonic syndrome, as descriptive of melancholy, with cataleptic symptoms, verbigeration and rhythmical movements. The prognosis of such forms of melancholia is graver than the other forms. The treatment is the same. Their classification with melancholia, however, seems open to criticism since dementia is the more common mental state.

CONFUSION IN PARANOIA.

Krause,[16] studying the conditions of confusion and excitement or stupor in the beginning and course of paranoia, thinks that paranoia may, in all its stages, show conditions of confusion with excitement or stupor which may often appear and disappear without materially influencing the whole state or the course of the main disease. Exhaustion seems to contribute to produce these conditions. Confusion may come on so early in paranoia as to form almost the beginning of the disease in cases of acute development and in some cases it may actually introduce the disease. Confusional conditions, coming on as exacerbations of paranoia, sometimes cannot be distinguished from acute confusional insanity. Such conditions are not rare, and they are of practical significance in arriving at a correct diagnosis and prognosis.

SENILE DEMENTIA.

Alzheimer [17] has made an exhaustive review of the recent works upon senile dementia and diseases of the brain, based upon the atheromatous disease of the vessels. Kraepelin [18] regards melancholia as a disease standing in casual relation to beginning senile decline; and, apart from this, he recognizes in melancholic conditions only the depressive states of periodical insanity and a constitutional disposition. Although some cases occurring in about the fourth decade of life may be possibly melancholic, Alzheimer has seen cases, perhaps following exhaustion, coming on in the period of full development. Such patients were perhaps more subject to a second attack at the climacteric period. Ziehen [19] also thinks that periodical melancholia develops in the period of decline, but some cases, after a long interval of sanity, have a second attack with marked mental failure and rapidly progressing dementia. There is no sharp distinction between these and the curable cases of melancholia in the period of decline. Melancholia develops when the brain has become weak and has lost its working capacity, senile dementia develops after the brain has lost distinctly in weight and signs of senility have appeared. Weigert has shown that there is an increase of glia in the cortex of the cerebrum and cerebellum. There is also an increase of pigment and degeneration of the ganglion cells and atheroma of the vessels. Where these changes are marked we may get the quiet forms of dementia which are very common, although not often seen in asylums; in other cases we may note excitement with depression, mania, delusions of persecution or delirious excitement. Noetzli [20] thinks that the quiet type may attack any one, but that the excited type requires a neurotic predisposition. Alzheimer questions this. The statistics of heredity are all defective and are especially hard to obtain in old persons. The statistics vary as to heredity and there is no proof either way. Febrile diseases often act as an exciting cause of senile dementia. The symptoms vary. Noetzli distinguishes dementia, mania, melancholia, hypochondria, persecutory delusions and alcoholic dementia. Mental weakness is common to all, but it would be better to speak of agitated, depressed, hypochondriacal and paranoical forms of senile dementia. The delirious forms in senility are marked by an acute onset, complete confusion, great excitement and terrifying hallucinations. Remissions are common, but there is often complete loss of strength and a fatal termination. Some cases go on to lachrymose anxious states. They are indicative of senile degeneration of the brain similar to collapse, delirium and paralytic delirium. Binswanger [21] distinguishes a presenile dementia of persons in the forties, whose judgment and memory fail, who become weak, dull, excitable, tremulous in speech and movement and who may do improper things requiring them to be sent to an asylum. The pupils may be sluggish, the speech nasal without stumbling or hesitancy. In these cases there may be a marked atrophy of the ganglion cells due, perhaps, to an acquired weakness of the central nervous system, with very slight atheroma. Most writers think atheroma of essential significance in senile dementia, but Alzheimer thinks that the changes are not due solely to the disturbance of the vessels but that the disturbance in the vessels may give rise to disturbance in other organs, causing changes in the blood, the nutrition, etc., and thus affect the nutrition of the brain cells.

THE PUPILS IN INSANITY.

Stefani and Morpurgo [22] have studied the pupils in forty insane patients compared with thirteen normal persons. They find that the pupils in the insane are never larger than in the normal but the variations are greater and the general average is lower. In the forms of insanity of brief duration there is a tendency to dilatation as the remission begins until the pupils reach the normal. In stuporous forms the pupils do not dilate until they reach the normal. In most chronic cases the pupils are smaller than the normal, contracting more during exacerbations. The degree of pupillary contraction is essentially in accord with the intensity and the more or less recent development of the mental disturbance.

SITOPHOBIA.

Cristiani [23] has studied seven cases of sitophobia, all ending fatally. In all cases changes were found in the brain. The mucous membrane of the stomach was swollen, the epithelium was destroyed, the vessels dilated, the glands atrophied, the connective tissue increased and, in the worst cases, the parenchyma was almost gone and the submucosa had begun to be in-

[15] Medical Record, October 2, 1897.
[16] Monatsch. für Psych. und Neurol., May, 1897.
[17] Loc. cit., January, 1898.
[18] Psychiatrie, 5te Aufe.
[19] Neurol. Centralbl., No. 19, 1898.
[20] Mittheil. aus klin. u. med. Instituten der Schweig., iii, 46.
[21] Berlin klin. Wochenschr., December, 1894.
[22] Rivista Sperimentale di Frenatria, xxiii, 350, 1897.
[23] Annali di Neurologia, xv, 433, 1897.

volved. The changes varied with the duration of the sitophobia. That such changes were not due to simple fasting he proved by starving rabbits. Then by starving rabbits and cauterizing the brain cortex he found that changes occurred in the stomach similar to those found in his patients. He therefore concludes that the gastric changes are dependent upon the changes in the brain and that, in these cases, both the brain and the stomach should be treated.

OPIUM TREATMENT OF MELANCHOLIA.

Ziehen[24] emphasizes the value of the opium treatment in severe melancholia. After dwelling upon the importance of rest in bed, he states that *the opium treatment is demanded in every case.* It directly counteracts the suicidal tendency by lessening the anxiety; but, above all, by its early employment and methodical administration it assures an essentially shorter and milder course of the disease. He gives a grain of powdered opium in powder or pill four times a day, or ten drops of the tincture. For patients who are very weak, very old, or very young, and for those with heart trouble, the dose must be smaller. The best hours for giving opium are 7 A. M., 3, 8 and 10 P. M. The dose is to be increased one grain daily. It is better to give the larger dose in the evening, so as to procure more rest during the night, but when the morning anxiety is intense, the larger dose may be given in the morning. If toxic symptoms, myosis or marked somnolency appear, the dose should not be increased; if the patient be quieter, however, the dose should be increased as anxiety may recur. The subcutaneous use of opium is less suitable and should be limited to cases in which there are severe gastric and intestinal disorders, cases in which there are very severe attacks of anxiety, when it is essential to quiet the patient very quickly, and cases in which the patient refuses to take medicine. Morphine does not seem to him nearly so suitable as the aqueous extract of opium. The highest dose to be given outside of a hospital is three to four grains; the highest daily dose twelve to fifteen grains. By admission to the hospital, the physician is usually spared such high doses. Hydropathic treatment materially supports the rest in bed and the opium; wet packs are most advisable at a temperature of eighty-eight, continued for one hour, best given in the evening. Prolonged baths, at a slightly higher temperature, for one hour, often have a favorable effect, but they must be used with caution. Constipation is due to the melancholia, not to the opium. Under opium treatment the constipation may often yield as the anxiety becomes less.

FAMILY CARE OF THE INSANE.

At a Conference held at Larbert in the Stirling Lunacy District, in England, the question of boarding out of harmless lunatics was urged by Dr. Macpherson,[25] who presented a *résumé* of the practice of boarding out in Scotland and urged its introduction in the Stirling District. This, we believe, is the beginning of the attempt to board out the chronic insane in England.

Alt, at Uchtspringe,[26] in his efforts to improve the service of the attendants in his hospital, has introduced a modification of family care which seems to be of considerable value; in his efforts to obtain efficient service from male attendants he recognizes the necessity of giving them an opportunity for marriage and independent family life. He therefore established near his asylum small settlements in which attendants might live and in which a small number of patients could be boarded out in these attendants' families. The houses in these settlements were provided with a moderate sized garden, and in this way, by the money received from the patients' board and by the work done by the patients, the attendants receive a considerable increase in their income. The close proximity to the asylum renders it easy for the patients to return to the asylum at stated intervals for inspection, to attend religious service at the asylum and to take part in the social features of asylum life.

AFTER-CARE OF THE INSANE.

The discussion of after-care of the insane at the National Conference of Charities in New York was of much interest.[27] Mr. Wines presented the idea that insane patients, leaving the hospital, should be cared for by ex-hospital attendants of good record. Mr. Sanborn advocated boarding out as a solution of after-care. Both these gentlemen and others, advocated the taking up of after-care by the State. Dr. Cutter wished to combine prevention of insanity by the care of incipient cases with after-care. These gentlemen lost sight in a greater or less degree of the strict subject of after-care as understood and practised by the various Continental societies and as advocated by the men who have labored to popularize it. After-care is provided for cured or convalescent patients, without resources or friends, who cannot or should not remain longer in institutions and who are not yet in condition to take up any work which will give them support. After-care effort is made to restore the cured insane, who are needy, to the world and thus to promote independence and prevent relapses. This is the work of which there is a crying need. Those who have studied the problem think it is useless for the State to assume it since the State has more than it can do in providing for those who are actually insane in institutions, and it is believed that the problem will work itself out by the formation of societies through private benevolence, which eventually may be supplemented by the State. If interest be enlisted and information disseminated the subject will be better understood and practical benefit will result.

Falret,[28] president of the Administrative Committee in the work of aiding the indigent insane discharged from the public asylums, reports that sixty-nine patients have been helped to positions in Paris, which represents a considerable number who had returned to ordinary life and shows the utility of the work, but the pecuniary resources and the increasing number of the convalescent and recovered insane unfortunately limit the work.

RECEPTION HOUSES.

The retirement of Dr. Norton Manning from the inspector-generalship of the insane in New South Wales recalls his efforts in the establishment of reception houses, which have met with great success.[29] The advantages of well-organized institutions to receive, treat and distribute mental cases from the existing system is so obvious and has been so often insisted upon that little new need be said in regard to it. The

[24] American Journal of Insanity, April, 1898.
[25] Journal of Mental Science, July, 1898.
[26] Monatschrift. für Psych. und Neurol., June, 1897.
[27] American Journal of Insanity, July, 1898.
[28] Annales Medico-psychologique, July, 1898.
[29] Journal of Mental Science, July, 1898.

unfitness of the police cell as a place for the treatment of an early phase of insanity is clear even to the most legal-minded, but many of the workhouse "lunatic wards" have also been, to say the least, most unsatisfactory. Reception houses properly equipped and with a competent medical and nursing staff are assuredly of the greatest advantage in caring for the early stages of mental disease and many cases could thus be arrested in their development and escape the need of asylum treatment. Early treatment would probably be facilitated since there would be less reluctance on the part of patients and their friends to go to such an institution. This reluctance at present leads to delay, so that illnesses which might have been abbreviated become protracted and incurable or the sufferer is permitted to commit some overt act of insanity. Economy, in the long run, should result from the diminution of the number of cases going to asylums, and indirectly by a more systematic distribution of the cases most appropriate to their mental state.

Reports of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

(Concluded from No. 18, p. 450.)

TWELFTH Annual Meeting, held at Cranston's Hotel, West Point, N. Y., June 7 and 8, 1898.

SECOND DAY. — WEDNESDAY.

DR. SAMUEL ALEXANDER, of New York, read a paper entitled

A STUDY INTO THE NATURE OF ENLARGEMENT OF THE PROSTATE.

He gave a lantern-slide exhibition demonstrating a method of studying the anatomy of the normal prostate and of obstructive enlargement of the prostate. The study was based upon observations made on 106 cases of enlargement of the prostate and over 100 cases of normal prostate.

Dr. Alexander said that one could form no idea of the form of prostatic obstruction by rectal examination, and the usual methods of studying the prostate gave very imperfect results. It was due to the defects in these methods of study that such great differences of opinion existed in regard to important points in the pathological anatomy of enlargement of the prostate. In order to get an adequate idea, it was necessary not only to study the gross specimens of enlargement of the prostate, but also to study them microscopically by means of large sections made through the entire gland and the adjoining portion of the bladder. In this way alone the true relations of the obstructing portions to the vesical muscle can be ascertained.

DR. ARTHUR T. CABOT, of Boston, read a paper on

PERSONAL EXPERIENCE IN THE OPERATIVE TREATMENT OF PROSTATIC OBSTRUCTION,

in which he reported in detail the results of five cases of orchidectomy, four cases of orchidectomy followed later by prostatectomy, and six cases of prostatectomy — all for the relief of obstruction due to hypertrophy of the prostate. The speaker said that when he came to consider the question of permanence of results, which next to that of immediate mortality was the most important, the data were not sufficient for definite conclusions. In order to hasten the final correct solution of this question he thought it very desirable that surgeons dealing with this class of cases should put on record all observations coming within their opportunity both of patients operated upon by them and of those seen by them after operation by others. In this way only can we speedily accumulate the facts necessary for a correct judgment.

Dr. Cabot said it was not his intention to attempt to draw any conclusions from cases so few in number as he had thus far accumulated. He wished, however, to point out the fact that in five cases orchidectomy failed to relieve the obstruction and the mechanical reason for this was afterwards investigated either by operation or autopsy. In every one of these cases the obstruction was found to be due to the outgrowth into the bladder of prostatic tissue which was not removed by the shrinkage that followed orchidectomy.

The speaker said that in those cases where there was very much enlargement of the prostate, with symptoms of obstruction which gradually grew more pronounced, he had rather favored orchidectomy, while in another class of cases where early and marked obstruction was associated with only slight or moderate enlargement of the gland, leading him to believe that the condition was a valvular one due to a prostatic outgrowth into the bladder, he preferred prostatectomy. In one case where he had resorted to orchidectomy he had been at first much encouraged by the marked improvement shown by the patient, but recently the patient had again appeared with seventeen ounces of residual urine.

In conclusion, Dr. Cabot said that the present success attending the use of our modern soft catheters in cases of prostatic obstruction has reduced the number of cases in which he had found it necessary to resort to operation.

DR. J. WILLIAM WHITE said that a comparison of the results of the two operations (orchidectomy and prostatectomy) in the series of cases quoted by Dr. Cabot would not redound so very strongly against castration. The speaker said he did not wish to convey the idea that castration should be resorted to in all cases of prostatic hypertrophy. He frequently declined to resort to the operation himself in cases which he regarded as unsuitable for it. At the same time in every case he thought it worthy of receiving fair consideration.

SOME OBSERVATIONS CONCERNING THE PROSTATE.

DR. R. H. GREENE, of New York, read a paper on this subject, which consisted of a preliminary report of his observations in a series of 214 cases of urethritis. The observations were undertaken in order to determine (1) the relative frequency of involvement of the posterior urethra in acute urethritis; (2) the condition of the prostate, and (3) the nature of the prostatic secretions. The series was made up of cases which represented the ordinary run of dispensary patients, no attempt being made to select those who complained of subjective symptoms pointing to the prostate.

The posterior urethra was found to be involved in 142 cases, or 66 per cent. The anterior urethra alone was involved in 72 cases, or 34 per cent. The prostate was found to be swollen in 102 cases, or 47 per cent. of the total number of cases examined. In 73 of

these cases the enlargement was most marked in the left lobe 71 per cent.; it was most marked in the right lobe in 19 cases, 19 per cent., and in 10 cases, about 10 per cent., the enlargement seemed to be general.

Secretions from the prostate were obtained as follows: After thoroughly washing the bladder and urethra the prostate was massaged through the rectum. The patient was then instructed to pass his water as soon as he was able to do so; this urine contained the secretion massaged from the prostate, which was put in bottles and examined microscopically. The complete results of these pathological examinations, Dr. Greene said, would be withheld for a later paper; briefly, the reports were interesting from a negative rather than from a positive standpoint. In the last series of 20 cases, pus was found in 14; diplococci were found in three specimens of 29 examined.

Dr. Greene said that one of the most interesting facts disclosed by these investigations was the frequency with which congestive inflammations, causing swelling of the prostate, accompanied urethritis. It would be interesting to learn whether these swellings eventually disappeared entirely or not. The writer believed that in some cases at least they did not, and suggested that his statistics might afford a little comfort to those who believed that an earlier urethritis was sometimes a predisposing cause to the prostatic hypertrophy of later life.

CHRONIC CATARRHAL PROSTATITIS.

DR. H. M. CHRISTIAN, of Philadelphia, read a paper on this subject. He stated that in the vast majority of cases, catarrhal prostatitis occurs as a result of chronic posterior urethritis, the acini or follicles of the prostate becoming involved in a chronic catarrhal inflammation from extension of the same process from the mucous membrane of the deep urethra.

Among the more prominent clinical features of this affection the speaker mentioned, (1) Prostatic discharge at the meatus upon waking in the morning. (2) Prostatorrhea: this condition is brought about by the over-distention of the glandular tubules with prostatic secretion. (3) Constant urethral pain, located either at the glans penis or in the perineum, relieved temporarily by urination.

Another group of symptoms, causing much mental perturbation to these patients, is increased frequency of urination, associated with a forked or sprinkling stream, with perhaps some little dribbling. A rectal examination is essential in all cases where we are led to suspect the presence of catarrhal prostatitis. If the prostate be the seat of a chronic catarrhal inflammation, it will be found to be somewhat larger than normal, and soft to the touch; stripping the gland causes much pain, and is invariably followed by the appearance at the meatus of an abundant prostatic discharge, which upon microscopic examination is found to be made up of granular phosphates containing pus.

Our main reliance in the management of this affection must be in some of the various forms of local treatment. Of these, regular and thorough massage of the prostate, at least once a week, is of the first importance. Irrigations of the deep urethra with silver-nitrate solution are very important. The regular passage of full-sized cold sounds is also of considerable value in the majority of cases, but great care should be taken to see that the sound does not give rise to urethral irritation. Ichthyol suppositories, introduced into the rectum at bedtime and followed in the morning by a hot rectal douche give very beneficial results.

Dr. Christian said he had frequently been asked what effect bicycle riding had upon patients with chronic prostatitis. He expressed the opinion that this form of exercise, so far as his experience went, exerted no injurious effects either upon cases of chronic prostatitis or upon the normal prostate.

DR. GLENN said he indorsed the remarks made by Dr. Christian regarding the treatment of this affection. Cold applications he considered beneficial, especially when applied through the rectum. Thorough and regular massage of the prostate with the finger should also be carried out.

DR. KEYES said he was very chary of passing a sound in cases of prostatitis, as he thought it frequently did harm rather than good. Massaging the prostate with the finger he disliked from an esthetic standpoint. The speaker said the jolting incident to bicycle riding was no doubt injurious to patients with prostatitis; the same was true of horseback riding.

DR. G. K. SWINBURNE, of New York, referred to the value of hot rectal douches through some form of recurrent tube, like the Kemp tube. The speaker said he was opposed to passing sounds in these cases.

DR. J. WILLIAM WHITE, in reply to a question, said that he had yet to see a single case where bicycle riding had exerted an injurious effect on the normal prostate, the perineum, or any portion of the male genito-urinary tract.

REPORT OF A CASE OF SCLEROTIC NARROWING OF MEATUS,

by DR. G. K. SWINBURNE, of New York.

ARE COMPLETE CASTRATES CAPABLE OF PROCREATION?

DR. FREDERICK R. STURGIS, of New York, read a paper with this title. His conclusions were as follows:

(1) In animals, for a varying period after complete castration, normal spermatozoa are found in the contents of the seminal vesicles.

(2) This period varies in different animals, being six days for the dog, seven days for the cat and fourteen for the guinea-pig.

(3) In man, clinical cases are recorded where fecundation of the female has occurred after coitus with a male who has been completely castrated, but in accepting the correctness of such statements we must remember the adage that "accidents may happen in the best regulated families." Still, Princeteau's case (if correct), proves that spermatozoa do exist for a certain time in the seminal vesicles of a eunuch, and arguing from analogy of what occurs in animals, this is quite probable.

(4) Still pursuing the analogy, in man, as in the dog and cat, a complete castrate may be capable of procreation providing the coitus occurs within the first seven days after the castration.

DR. GLENN said he saw no reason why impregnation was not possible after castration if healthy spermatozoa in their normal pabulum remained.

DR. F. TILDEN BROWN said he had found live spermatozoa in a man's seminal vesicles fourteen hours after death.

A GENERAL CONSIDERATION OF THE CONTRIBUTING FACTORS IN HEMATURIA.

DR. WILLIAM K. OTIS, of New York, read a paper with this title. He stated that every hemorrhage of the urinary apparatus results from the extravasation of blood, either as a whole, or of blood corpuscles, or of the blood pigment alone. The cause of the blood extravasation lies in increased blood pressure, or in changes in the vessels, or in a combination of both. Hemorrhages of the urinary apparatus result, therefore, in inflammatory processes, in traumatic injuries, in diseases of the vessels, in the exanthemata, in scurvy and thorough erosion of the vessels in ulcerative processes and neoplasms. Among the rarer forms of hematuria or hemoglobinuria might be mentioned those caused by general diseases or by parasites, as filaria, or those due to traumata.

The causes of hematuria which we most frequently encounter and which possess the greatest importance have their origin in either the bladder or the kidney, and are due directly to (1) stone (including gravel and acid crystals); (2) tumors; (3) tuberculosis; (4) inflammatory conditions, cystitis and nephritis.

Stone in the bladder causes hemorrhage either by directly injuring the mucous membrane by its movements, or, as Guyon has shown, by the presence of the stone alone, which induces a chronic congestion of the mucous membrane, frequently causing profuse and intractable bleeding which is neither increased nor abated by either movement or repose on the part of the patient and which usually persists until the foreign body is removed. Stone in the kidney causes hematuria either by its passage through the ureter or by its retention in the pelvis of the kidney.

Tumors of the bladder may cause hemorrhage even though they are benign, and in these cases the hemorrhage is due to the presence of the foreign body in the bladder. When the tumor is malignant, the hemorrhage is caused by the ulceration of the vessels; for the most part, however, such hemorrhages are not severe. As a rule, renal hemorrhage from a neoplasm begins spontaneously, is unaccompanied by pain and is uninfluenced by either movement or rest, ceasing suddenly without apparent cause, just as it began. It is apt to be more abundant than when caused by stone, and clots frequently form in the bladder. Its duration and the intervals between the hemorrhages are irregular. In some cases the bleeding may be occasioned by exercise and cease when the patient remains quiet.

When the hemorrhage is due to tubercular ulceration it can only be differentiated from that caused by neoplasms, by bacteriological examination of the urine for bacilli, by the discovery of tubercular foci in other parts of the body, or by the tuberculin test.

Hemorrhages may occur in either acute or chronic cystitis or nephritis, but these are rarely of much severity. The clinical features of these cases will readily determine the cause of the bleeding.

A certain number of cases of renal hematuria have been reported in which no lesion was found, but as most of these have lacked the corroboration of a microscopical examination or from some other reason have been imperfect, Dr. Otis said he was inclined to believe there could be no hemorrhage from any portion of the genito-urinary tract without some lesion being present, though undoubtedly this may be so small as to entirely escape notice but at the same time be capable of giving rise to profuse hemorrhage.

SOME OBSERVATIONS ON THE USE OF UROTROPIN IN PYURIA.

DR. GEORGE E. BREWER, of New York, read a paper on this subject. He stated that in the *Deutsche Medicinische Wochenschrift* of November, 1897, Dr. Leopold Casper calls attention to the antiseptic value of urotropin in diseases of the urinary passages; in the article referred to, the author claimed that clinical observation had convinced him that in this agent we possessed a remedy of great value in the various suppurative inflammations of the pelvis of the kidney and the bladder, as well as in the septic intoxications which so frequently follow the absorption of the toxins generated by these conditions. Attention was also called by Dr. Casper to the value of this agent in phosphoturia, and by other writers in conditions associated with the formation of uric-acid concretions.

Citron, in speaking of the chemistry of urotropin, states that its antiseptic action in the urinary passages is due to its decomposition in the economy, giving rise to formaldehyde, which is excreted in the urine.

Dr. Brewer then reported three cases of pyuria which were apparently benefited by the use of urotropin. Two of these were cases of acute prostatitis, and the third was a case of pyelitis following gonorrhea.

Dr. Brewer said that while he was aware that the three cases he had reported proved absolutely nothing regarding the value of urotropin in pyelitic pyuria, he was of the opinion that the favorable result in these cases was probably directly due to the influence of the drug.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

REGULAR Meeting, April 19, 1898, the President, DR. F. H. DAVENPORT, in the chair.

DR. C. E. WILLIAMS, by invitation, reported

A CASE OF PUERPERAL SEPSIS SUCCESSFULLY TREATED BY ANTISTREPTOCOCCIC SERUM.[1]

DR. T. H. O'CONNOR, by invitation, reported

A CASE OF PUERPERAL SEPSIS SUCCESSFULLY TREATED BY ANTISTREPTOCOCCIC SERUM.[2]

DR. A. WORCESTER: I am struck with the excellence of the general treatment of these cases as reported. While in Dr. Williams's case, at least, the most alarming prognosis was justified, those of us who have been brought up on sepsis, so to speak, know what striking remissions in the disease sometimes occur and what seem apparently hopeless cases recover. As I remember the cases I used to see fourteen years ago in the Boston Lying-in Hospital it seems to me that they were not much more prolonged than those reported to-night. If the antistreptococcic serum is to accomplish all that is claimed for it, it seems to me that it should produce an effect even more marked than in these two cases.

DR. A. D. SINCLAIR: In the epidemic of 1879–80, to which Dr. Worcester has referred, in which at one time the conditions were so bad that 45 per cent. of all

[1] See page 467 of the Journal.
[2] See page 468 of the Journal.

patients were affected, we were very much in the dark as to the proper treatment to be pursued, but the course of the disease under our then treatment went on much as in the two cases reported to-night. I introduced the use of carbolic intrauterine douches with some success.

Dr. F. B. Harrington: I see quite a number of cases of septicemia following septic peritonitis and, of course, with every other surgeon hope that a serum will be found that will prove of real value. The more of these cases I see the more I feel that it is the sepsis that kills and not the peritonitis and the paralysis of the intestine and distention as is often taught. Such cases often die with the bowels moving freely. While the reports on serum at the Moscow Congress were not especially favorable, cases like the two reported to-night warrant further experiments.

Dr. G. J. Engelmann: I have followed the use of the serum with care and much interest. It is to be noted that in these cases there were no untoward symptoms from its use; sometimes very unfavorable results are seen, depending apparently upon the make. I have been anxious to try the serum in the less serious class of cases — phlegmon, for instance. These cases certainly point to further trial.

Dr. J. G. Blake: My experience corresponds with that of Dr. Sinclair. Twenty years ago, before the days of antisepsis, treatment was most unsatisfactory. The antiseptic treatment is, however, most satisfactory in the early cases, while at the hospitals at present we seldom see cases until the disease is well advanced. To me this serum treatment seems most rational. The question of the make is an important one. In the first case, at any rate, the cure seems directly due to the serum. I feel encouraged to try it further.

Dr. C. W. Townsend: Dr. Williams's case was certainly a very striking one. When I saw the woman I gave a most grave prognosis — in fact, a quite hopeless one. Of course, we are often mistaken and apparently hopeless cases recover under the stimulant treatment, but I do not think I ever saw recovery before in quite so desperate a case. When the serum was suggested in this case I confess I was very sceptical as to its value. While this case is a striking example of its value under certain conditions we must not rely entirely upon it and neglect local treatment, for the vast majority of cases can be handled by local treatment if seen in the early stages.

Dr. W. L. Burrage: I have tried the serum in two cases. The first, in 1896, was a case of late sepsis under my care at the Carney Hospital. The uterus was empty and contracted, with no focus of infection. The patient entered with a high temperature and diarrhea. The Marmorek serum was used for several days with little effect, and the patient died ultimately. The second case was one of septicemia following post-operative fecal fistula. The patient was in bad condition when she came into my hands. Here, also, Marmorek's serum was used in large doses, but after a time was abandoned. Here, also, the patient ultimately died.

A Memorial to Dr. John Blair Gibbs. — By direction of the President, the general field hospital at Camp Hamilton, Lexington, Ky., has been designated as John Blair Gibbs General Hospital, in honor of Assistant Surgeon John Blair Gibbs, of New York, who died on June 12, 1898, from wounds received in an engagement with Spanish infantry at Guantanamo.

Recent Literature.

A Clinical Text-Book of Medical Diagnosis for Physicians and Students Based on the Most Recent Methods of Examination. By Oswald Vierordt, M.D., Professor of Medicine at the University of Heidelberg. Authorized Translation with Additions. By Francis H. Stuart, A.M., M.D. Fourth American Edition, from the Fifth German. Revised and Enlarged, with 194 Illustrations. Philadelphia: W. B. Saunders. 1898.

In notices of previous editions of this book we have expressed our appreciation of its inherent excellence and practical value. It is hardly necessary to say more in regard to this new edition, than that it brings the work in the same satisfactory way up to a more recent date.

A Manual of Venereal Diseases. By James R. Hayden, M.D. New York and Philadelphia: Lea Brothers & Co. 1898.

In this work we find a compendium in which are briefly summarized the more essential points of symptomatology and treatment of the three venereal diseases — gonorrhea, chancroid and syphilis.

It may be questionable whether this species of work does not tempt students from making the thorough study of the subjects which they should undertake, and which, it goes without saying, it does not give the opportunity of doing. Apart from this the work serves very well the purpose for which it is intended and may be recommended to the general practitioner and the student as a safe guide in the treatment of venereal diseases, and as giving in a readily accessible form a good deal of practical information.

Notes on Disinfectants and Disinfections. By A. G. Young, M.D., Secretary of the State Board of Health of Maine. Pp. 218. Augusta, 1898.

The able Secretary of the State Board of Health of Maine has performed an excellent and useful service in compiling this *résumé* of the subject of disinfectants, in which he has quoted the most recent authorities which treat of the subject experimentally.

Carbolic acid with its derivatives, the more recent experiments with formaldehyde, the effect of heat, light, freezing and electricity, the disinfection of rooms, clothing, bedding, books, instruments, hands, etc., are all considered.

The book should be in the hands of every health officer and general practitioner.

Introduction to Chemical Methods of Clinical Diagnosis. By H. Tappeiner, M.D., Professor of Pharmacology, University of Munich. Translated from the German Edition with an Appendix on Micro-Biological Methods of Diagnosis. By Edmond I. McWeeney, M.A., M.D., Professor of Pathology and Bacteriology, C. U. Medical School. London, New York and Bombay: Longmans, Green & Co. 1898.

In this book the author and translator have attempted to crowd into one hundred and fifty pages a description of the methods of chemical, bacteriological and micro-biological examination which are applicable to clinical work in medicine. In spite of the fact that the work is well done we cannot but question whether

the authors have worked to any great purpose. It is certain that if a student would learn these processes in the manner least suited to benefit him in his work, he would learn them from just such a book as this. Methods and reactions should be studied in connection with the theory of the subjects to which they are applied. Much that is essential to the proper understanding of the results is left out in a review so restricted as this, however correct the restrictions. While these compends may serve for reference, we think that medical literature is upon the whole better without them. They are apt to prove a cross-cut, which takes men off the proper road to knowledge.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics and Toxicology in the Medical Department, Cornell University. Fourth Edition. New York: William Wood & Co. 1898.

This book is, as its name implies, simply a manual for reference in the pursuit of laboratory work. The section on qualitative analysis includes simply a list of the test reactions of the acids and bases, with an outline of the method of separation and determination to be used in the work in Inorganic Chemistry.

The section upon the analysis of urine is a very concise statement of the methods employed in the analyses for clinical work. It seems to us that the author has not always chosen the methods most applicable to clinical work in his choice of methods of quantitative determination.

The introduction of the process of fusion into the test for chlorine makes this test difficult for the ordinary clinician. The method of simple titration without previous fusion is sufficiently accurate for practical purposes.

The quantitative test for urea used by the author is much more laborious than the simple Squibbs method with sodium hypobromate and no more satisfactory.

The book will serve as an admirable reference book for those who work in Professor Witthaus's laboratory; we doubt if its sale in other quarters will be very great.

The Office Treatment of Hemorrhoids, Fistulæ, etc., Without Operation. By CHAS. B. KELSEY, A. M., M.D., Late Professor of Surgery at the New York Post-Graduate School, Medical School and Hospital, etc. New York: E. K. Pelton. 1898.

This little book of sixty-eight pages is a reprint of three lectures of the writer. The *First* is an argument that hemorrhoids, fistulæ and fissures do not always require radical routine operative treatment. The *Second* treats of the causative relation of the pelvic diseases in women to affections of the rectum. The *Third* advocates extirpation of the rectum as the preferable treatment of chronic inflammation with obstruction in place of inguinal colotomy. The lectures are printed as delivered. The style is colloquial. The subjects are treated in a rather general way, the reader being referred to the author's more extensive work on rectal diseases for details. The lectures *may* have been interesting to Dr. Kelsey's class of students, when delivered as part of a course devoted to the clinical study and operative treatment of rectal diseases, but, as printed, they contain so frequent allusions to clinical demonstrations as to furnish little information not general in character to the reader.

Spaltehols's Atlas of Anatomy. [Handatlas der Anatomie des Menschen in 750 Theils; farbigen Abbildungen mit Text. Mit Unterstützung von WILHELM HIS, bearbeitet von WERNER SPALTEHOLZ. Zweiter Band, 2 Abtheilung. Leipzig: S. Hirzel. 1898.]

The part before us completes the second volume of this very attractive work. It deals with the heart and the blood-vessels. The views of the heart are numerous and very good. Some of the dissections of this organ please us particularly. It is impossible to show much originality in the presentation of the blood-vessels, especially of the arteries. We will only say that the work is well done. The arteries are in red and the veins in blue. In some few cases both colors are used in the same plate; a method that might have been used with advantage in a few others. The description of the arteries of the small intestine is inadequate, but no more so than that of far more pretentious works. Indeed one would think that the real plan is not generally known.

One volume is still to come, which will treat of the brain, nerves, organs of sense, and the viscera. We hope to welcome it before long.

Twentieth Century Practice, an International Encyclopædia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Volume XV. Infectious Diseases. New York: William Wood & Co. 1898.

This is an interesting and important volume of this series. It treats of influenza, typhus fever, plague, glanders, anthrax, foot-and-mouth disease, actinomycosis, rabies, pyemia and septicemia — diseases upon which the modern study and development of parasitism have thrown much light. Prof. Ditmar Finkler, of Bonn, devotes 250 pages to influenza and furnishes a very thorough treatment of this important disorder. Prof. Edward Licéaga, of Mexico, who is well and most favorably known in this country in connection with problems of sanitation, was judiciously selected for the article on typhus fever, to which seventy pages are given.

Professor Kitasato, now director of the Institute for Infectious Diseases at Tokio, and Dr. Nakagama, his assistant, provide the article on plague, a short but admirable paper of less than thirty pages. Professor Kitasato's fitness for this authorship will be generally recognized. Glanders and anthrax are dealt with by Dr. Frank S. Billings, formerly of Nebraska and Chicago. Dr. Boas, of Berlin, and Professor Ponfick, of Breslau, furnish short papers on foot-and-mouth disease and actinomycosis respectively. Dr. Keirle, of Baltimore, writes on rabies, and Drs. McFadden Gaston, Senior and Junior, of Georgia, on pyemia and septicemia.

Taken as a whole, the volume is a distinct addition to the series.

THE BEAUTIES OF THE GERMAN LANGUAGE. — The *New York Times* publishes in a letter apropos of the German language, the following sentence taken from a German book on rhetoric: "Beides enhält den Begriff der Einhert, der doch mit dem der Zweiheit combinirt ist"; and of the American student's translation of it: "Both contains the idea of singularity combined with that of duplicity or deucedness."

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ABDOMINAL INCISIONS.

The multiplication of the indications for incision of the abdominal wall, and the frequency of its performance, together with the great tendency to hernia in wrongly placed or carelessly sutured incisions, have led surgeons to pay great attention of late years not only to the careful closure, but the proper location and direction of abdominal incisions, and it has been found that the prevention of hernia is as much aided by the latter precautions as by the former.

The technique of the suture of the layers of the abdominal wall as perfected in the many ingenious operations for the radical cure of hernia has been applied to the immediate suture of the abdominal wound, so that the conscientious surgeon nowadays, when he has made an aseptic incision in the abdominal wall, on closing it performs, so to speak, "radical prevention," or radical cure of the hernia which, with improper or careless suturing, might be expected to follow as a result of an otherwise successful operation. Many ingenious methods of suture which have been devised for the radical cure of hernia may be employed to great advantage in the primary closure of an abdominal incision. But it is not so much to the methods of suturing incisions, as to their skilful placing, and adaptation to the region and to the muscular walls of the abdomen that we wish to allude in these brief remarks.

In the earlier laparotomies, which were all made in the linea alba, and which were almost all done for the removal of ovarian tumors, the incision was a long one, five or six inches, and the operators not infrequently found that their patients sooner or later came to consult them for ventral hernias through the laparotomy wounds. The first modification of the incision which suggested itself as likely to prevent hernia was to make it as short as possible, for it was obvious that the shorter the incision the less the weakening of the abdominal wall. A great improvement followed efforts on the part of operators to work through incisions as short as possible, and remarkable skill in carrying on extensive intra-abdominal manipulations through a very short incision has been developed by many abdominal surgeons, and is an important requisite to success in this department of surgery.

Another point which soon became obvious was that efficient suture could best be performed not on incisions made through thin portions of the abdominal wall, such as the linea alba, but through several layers which could be accurately apposed in suturing. Incisions for aseptic pelvic surgery, for instance, are with advantage made to one side of the linea alba, so that the sheath of the rectus is divided both in front of and behind that muscle, and may be accurately sutured afterwards. At first it was thought best to go through the muscle, but now many surgeons apply with success to the median abdominal incision a method first devised for an incision along the outer border of the rectus for appendicitis, namely, incision of the anterior sheath, displacement of the belly of the muscle, followed by incision of the posterior sheath and peritoneum. This method, when the separate layers of sheath are sutured after operation, allows the interposition of the intact muscular belly, which is allowed to fall back directly across the line of incision, and cannot help strengthening it greatly.

The appendicitis incision also, which in the old days so frequently resulted in hernia, has been recently so modified as to result in the frequent avoidance of this untoward result. The short oblique incision was the first refinement on the old long cut and many surgeons perfected themselves so that they frequently were able to perform interval appendectomy through an incision an inch long.

There remained, however, a certain number of cases in which a long incision was necessary for safety in searching for a hidden or deeply placed adherent appendix, and for this class of cases the method devised by McBurney, the criss-cross incision, which separates without dividing transversely the fibres of the external oblique aponeurosis, and again separates the fibres of the internal oblique and transversalis, has made possible an accurate layer suture of a wound which is brought together instead of stretched apart by muscular contractions, thus almost certainly preventing postoperative hernia.

A similar method has been applied with success in the lumbar region for operations on the kidney. Another important point in regard to lumbar incisions is the now recognized advisability of placing them obliquely and parallel to the lower intercostal nerves which supply the rectus muscles.

Extensive ventral herniæ from paralyses of the rectus muscles, due to division of their nerves in vertical incisions in the lumbar region of the abdomen, have come under the observation of many surgeons, and led to the adoption of the oblique incision.

In the upper part of the abdomen, which is concerned in operations upon the gall-bladder, stomach and spleen, although there is less danger of hernia from faulty incisions, it has in certain cases resulted,

and ingenious incisions have been planned for its avoidance.

This brief and very incomplete outline of some of the refinements which have been brought about in the recent development of abdominal surgery, refinements which are of great importance to the subsequent comfort of patients who are subjected to such operations, is only intended to give an elementary idea of the progress which is being made in this important branch of surgery.

It will be seen that the fundamental principles on which the most important advances have been made are the following:

(1) The employment of the shortest possible incision.

(2) The division of muscle and aponeurosis in a direction parallel with and not transverse to the course of their fibres.

(3) The division of structures, when possible, in such a manner that undivided muscle or fascial planes may come between the lines of division above and below them. (Displacement of the rectus.)

(4) The placing of incisions so as to avoid division of the nerves which supply the abdominal muscles.

(5) The application to the immediate section of abdominal wounds of the methods which have been found to give the best results in the radical cure of hernia.

Although a great deal has already been accomplished in the technique of abdominal incisions, there is still room for the exercise of ingenuity in further perfecting our present methods and in the devising of other and better ways of avoiding the unpleasant results which may follow abdominal incisions.

GENUINE AND SENTIMENTAL GRIEVANCES.

WE all know how numerous and varied the complaints have been against the administration of the War Department, the management of the camps and the inefficiency of the medical service during the recent war with Spain. Time and more careful investigation is showing that some of these animadversions were well founded and were not exaggerated. On the other hand, there was another class of fault-finding which was so fantastical that it tends to throw discredit upon the really just and proper criticisms made upon the Department. As typical of this sort of grievance, we were struck during the occupancy of Camp Wikoff by a statement from an undoubtedly sincere and well-meaning missionary detailed by his church to minister to the sick and dying at that camp. In his statement this clergyman complains that the treatment of the dead soldiers at that camp was "simply outrageous." They were not "embalmed," not buried in uniforms, the coffins were of pine wood, there were no pillows in the coffins, the coffins were not lined, the American flag was not wrapped round each coffin; each dead body did not have the burial service read over it separately; there were no taps for each individual dead soldier.

This want of "decent respect" was compared with the arrangements which await the deceased paupers at Hempstead, L. I., of which this complainant had personal knowledge and experience. It appears the dead paupers at Hempstead are provided with handsome, well-lined "caskets," have pillows under their heads, and a separate burial service; whether they are "embalmed" or not we are not told!

Having been somewhat impressed by the extravagances of this statement we took occasion lately, as it presented itself, to ask a surgeon, who saw much service at Camp Wikoff in connection with a Volunteer Aid Association, not with the Army Medical Service, what his observations had been in regard to the burial of the dead at that camp. He acknowledged that conditions fell short of the ideal or the esthetic, but many of these conditions in justice to the living were unavoidable. He pointed out that the distance from the graveyard to the hospital was not very great, and taps at the cemetery could be distinctly heard through the hospital. On one day he recalled the fact that there were seventeen interments. Taps consume about fifteen minutes; separate military honors for each of these dead soldiers would have occupied about four hours, and the burial services much more in addition. At that time there were among the sick soldiers in the hospital forty or fifty still alive but hovering between life and death. In the opinion of this experienced observer, taps over the dead at that time would have turned the scale against many of these grieviously sick and depressed but still living men!

As to embalming, and as to handsome, well-lined caskets with pillows, etc., it is perhaps needless to say that our colleague shared our sentiment that these things need not even be characterized as non-essentials!

War is a grevious thing. We were warned of that fact before we went into this one. It was unavoidable, and is perhaps not altogether to be regretted, that we should have practically realized that abstract statement. If we push ourselves or allow others to push us into more wars, the rank and file of the voters and of the intending volunteers will not be tempted thereto by visions of the picnics to be provided by the commissariat during life and by rosewood caskets, embalming, and ornate services after death.

MEDICAL NOTES.

AROUND THE WORLD IN ONE HUNDRED AND TWENTY-EIGHT DAYS. — We note, in the *Philadelphia Medical Journal* for October 29th, the publication of some verses, entitled the "Foramen's Lament," together with our introductory remarks, which appeared in our issue of June 23, 1898. The *Philadelphia Journal* credits it to the *Indian Medical Gazette*, which is interesting as showing that a good thing finally penetrates as far as Philadelphia. Even if it has to

go around the world to get there, this is pleasing. The only damage sustained in the long journey has been the shaking up of a Greek word in a rather unsuccessful attempt to put it into English type. This has so changed our gentle facetiousness, that no one would recognize the name of the distinguished discoverer of the foramen of Winslow.

Yellow Fever in Mexico. — The officials of the State of Nuevo Leon, Mex., report the occurrence of several cases of yellow fever at Monterey.

Disastrous Floods in China. — Reports from Shan-Tung Province, China, state that the Hoang-Ho has left its bed near the city of Tsi-Nan-Fu, capital of Shan-Tung Province, and flooded two thousand square miles of territory. Hundreds of villages have been destroyed, a million people are suffering and famine is imminent.

A Miscarriage of Justice. — A physician in Peoria recently brought suit, to recover fees, before the magistrate's court. A jury was summoned, and, after hearing the testimony, not only disallowed the account, but, upon the mother's plea that her daughter was not benefited, actually assessed against the attending physician the sum of some $30, to reimburse the mother for services as nurse in the case. — *Peoria Medical Journal.*

Yellow Fever in the South. — Although yellow fever in the South has almost ceased, on account of frosts in the Mississippi Valley, the Marine-Hospital Service has decided, for the sake of safety, to continue all quarantine stations till November 15th, on account of the possibility of the fever being brought to our ports by troops returning from Cuba on the transports. By November 15th, the disease should be practically over in Cuba. The following are the latest reports received by the Service:

		Cases.	Deaths.
Mississippi: Harriston,	Oct. 28-Nov. 5,	2	1
Jackson,	" "	17	2
Madison,	" "	12	0
Natchez,	" "	7	2
Orwood,	" "	1	0

The Mississippi Valley Medical Association. — At the Nashville Meeting of the Mississippi Valley Medical Association, the following officers were elected: President, Dr. Duncan Eve, Nashville, Tenn.; First Vice-President, Dr. A. J. Ochsner, Chicago, Ill.; Second Vice-President, Dr. J. C. Morfit, St. Louis, Mo.; Secretary, Dr. Henry E. Tuley, Louisville, Ky. (111 West Kentucky Street); Treasurer, Dr. Dudley S. Reynolds, Louisville, Ky. Next place of meeting, Chicago. Chairman of Committee of Arrangements, Dr. Harold N. Moyer. Time of meeting, October, 1899, date to be determined by the Executive Officers and the Chairman of the Committee of Arrangements.

The Danger of Disease from Bacteriological Laboratories. — The fact that several cases of plague have recently resulted in Vienna from the contraction of the disease by a servant in Professor Nothnagel's laboratory from the inoculated animals of which he had the care has raised the question, to which we previously adverted, of how much of the alleged danger, if any, is inherent in the presence of a laboratory, and how much may be avoided by care and proper discipline. It has been brought out in regard to the case of Barisch, the servant in question, that, not only had long familiarity bred carelessness in the handling of the animals, but this carelessness at the particular time of his infection had been increased by an over-indulgence which, though never praiseworthy, was in connection with his especial work and surroundings particularly reprehensible.

Alvarenga Prize of the College of Physicians of Philadelphia. — The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about one hundred and eighty dollars, will be made on July 14, 1898, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition must be received by the Secretary of the College, Thomas R. Neilson, on or before May 1, 1899. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. The Alvarenga Prize for 1898 has been awarded to Dr. S. A. Knopf, of New York City, for an Essay entitled: "Modern Prophylaxis of Pulmonary Tuberculosis and its Treatment in Special Institutions and at Home."

BOSTON AND NEW ENGLAND.

Death of Dr. A. H. Robinson. — Abraham H. Robinson, A.M., M.D., died in Concord, N. H., November 10th. He was born in Concord in 1813. He was graduated at Yale in 1835. He pursued his medical course at Yale and Dartmouth. He had been President of the Centre District and New Hampshire Medical Societies, and twice represented the town of Salisbury in the House of Representatives. During the War of the Rebellion he was a surgeon in the army.

A Uniform and Efficient Quarantine System. — A convention has been called, to meet in Memphis next week, to evolve a plan for a uniform and more efficient quarantine system. Dr. H. P. Walcott, Chairman of the State Board of Health, and Dr. S. H. Durgin, Chairman of the Boston Board, have been appointed by the Governor to represent the State of Massachusetts.

Death of D. R. Dewey, M.D., Assistant-Surgeon, United States Volunteers. — Dr. D. R. Dewey died at his home in North Adams, Mass., November 6th, from typhoid fever, contracted at Camp Chickamauga last August. He was Assistant-Surgeon of the Fourteenth New York, and after some service with his regiment, returned ill with typhoid,

from which he apparently recovered, when a relapse ensued, which caused his death. Dr. Dewey was born at Whitehall, N. Y. His father was a surgeon in the Civil War, served with the Fourteenth New York too, and came home from service to die when his son was three years old. He attended Williams College, and was graduated in medicine from Columbia University.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The stated meeting of the Suffolk District Medical Society took place at 19 Boylston Place on October 29th, President Francis H. Brown in the chair. The first paper was by Dr. Mark W. Richardson on "The Value of Urotropin as a Urinary Antiseptic, with especial reference to its Use in Typhoid Fever." It was discussed briefly by Dr. H. F. Vickery and Dr. Paul Thorndike. Second paper, "The Remote Effects by Sprains," by Dr. R. W. Lovett. Dr. Vietor spoke shortly from the floor on "Some other Effects of Sprains." The President nominated the following Secretaries of Sections. Section in Clinical Medicine and Hygiene, Dr. J. B. Ogden; Section in Obstetrics and Diseases of Women, Dr. C. H. Hare; Section in Anatomy and Surgery, Dr. Paul Thorndike. Dr. E. A. Crockett then read a paper entitled "With the Hospital Ship *Bay State* in Porto Rico," after which Dr. E. G. Brackett gave a few personal reminiscences of Santiago. Supper was served after the meeting.

NEW YORK.

QUARANTINE AGAINST HAMBURG AND VIENNA. — On November 2d, the Commissioner of Immigration received orders from Washington to quarantine passengers from Hamburg and Vienna on their arrival at the port of New York, on account of the appearance of the bubonic plague at Vienna.

ANNUAL APPROPRIATION FOR HEALTH DEPARTMENT. — The city's "Budget," for the year 1899, as finally revised, was passed by the Board of Estimate and Apportionment on October 31st, and the appropriation fixed for the expenses of the Health Department was $1,110,538. This is an increase of $119,480 over the allowance granted for 1898, but is $162,539 less than the estimate presented by the Board of Health.

THE NEW BUILDING OF KINGS COUNTY MEDICAL SOCIETY. — The corner-stone of the new building of the Medical Society of the County of Kings in Brooklyn, N. Y., is to be laid, with appropriate exercises, on November 10th. The Society is now in its seventy-sixth year.

DR. BULKLEY'S LECTURES ON DISEASES OF THE SKIN. — The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a series of clinical conferences on "Diseases of the Skin," on Wednesday afternoons, in the Out-Patient Hall of the hospital. For many years Dr. Bulkley has given his valuable courses of clinical lectures, which are always free to members of the profession and medical students, at the New York Hospital.

THE NEW CITY MORGUE. — The fine new city morgue, which has for some time past been in process of construction at the foot of East 26th Street, was opened without formalities on November 4th. The twenty-seven bodies in the old morgue were removed to it, and one of the first additional ones to be brought in was that of Margaret Corley, aged one hundred and seven years, who died of dementia the day before at the Manhattan State Hospital for the Insane on Blackwell's Island. The new morgue is far more commodious than any the city has ever possessed, and among its modern appliances is an extensive refrigerating plant.

MEMORIAL TO DR. FORDYCE BARKER. — By the will of Mrs. Elizabeth L. Barker, widow of Dr. Fordyce Barker, of New York, who died last week in Connecticut, $5,000 is left to St. Luke's Hospital for a free bed in memory of her husband and her son Fordyce Dwight Barker, to be known as the "Fordyce Barker Memorial Bed."

UGLY VS. PRETTY SICK-NURSES. — At the conference of the State Federation of Woman's Clubs recently held in New York one of the subjects under discussion was the comparative merits of plain and pretty sick-nurses, and it was decided "by a large majority" that the former were vastly superior.

AMENITIES. — On November 5th Commissioner William T. Jenkins, chairman of the department's Sanitary Committee, submitted to the Board of Health a full history of the case of Colonel Waring, together with the report of the Chief Inspector of the First Division. In it he criticises the Quarantine officials as not showing a proper regard for the public safety in failing to detain the Colonel under observation. In a subsequent part of his report Dr. Jenkins upholds the City Health Department in assuming the responsibility of allowing Colonel Waring to remain at his residence, stating that the justification of this policy is ample by reason of the excellent sanitary condition, not only of the house, but also of the immediate surroundings, and the measures taken for the isolation of himself and those attending him. Dr. Jenkins is a Tammany Democrat and Croker's brother-in-law; Dr. Doty, at the head of the Quarantine Service, is a (Platt?) Republican!

Miscellany.

THE INFLUENCE OF COITUS WITH WHITE MEN IN INDUCING STERILITY IN ABORIGINAL WOMEN.

DR. SARSFIELD CASSIDY, of New South Wales (*Medical Council*, October), quoted in the *New York Medical Journal*, November 5th, says that it is well known in that country and established beyond doubt that an aboriginal native woman of Australia will

never bear children to an aboriginal man after she has once had offspring by a white man. It has been tried in vain to find an instance where the aboriginal woman, having returned to the black man's camp, though sound in mind and body and absolutely free from any disease whatever, and having lived there with black men whose power of reproduction was beyond dispute, did not nevertheless remain absolutely barren.

If, says Dr. Cassidy, the diseases of civilized life were communicated to the woman before her return to the gunyah of the black man, thereby placing her *hors de combat* in the work of reproduction, the problem might be easily susceptible of solution; but it has been proved, he says, over and over again that the woman being absolutely sound and the man entirely able, no results follow their union even under the most favorable circumstances. Should she, however, return among white folks, she conceives with evident ease. The black man does not taboo her during her stay with him, but, on the contrary, on account of her mixing with the whites, he treats her with special friendship and ardent affection.

We may add that such is also the case on the west coast of Africa, where the black woman who has lived with a white man is especially favored by the native males.

CASES OF PLAGUE FOLLOWING ACCIDENTAL INOCULATION.

The *Indian Medical Gazette*, October, 1898, reports three cases of plague following accidental inoculation:

A medical officer made a post-mortem on a plague case in Madras one hour after death on October 7th. He was assisted by a native, who pricked his finger in sewing up the body. The medical officer felt ill on October 9th, was very ill on October 10th, temperature being 103°, and continued so until the night of October 16th, when the temperature became normal and he convalesced. The native, who pricked his finger, absented himself from work on October 10th, and died on October 15th. The autopsy showed that he had died of plague.

A hospital assistant made a post-mortem examination on March 14th, at 3 P. M., on the body of a patient who had died of pneumonic plague thirteen hours before, in the Parel Hospital, Bombay. During the examination he pricked one of the fingers of his left hand. On the evening of March 16th he felt ill. He was reported sick on March 18th, and had then high fever with enlargement of the left supratrochlea gland. On March 19th, there was a bubo in the left axilla, and he died on the morning of March 20th.

The period of incubation in these cases seems to have been from two to three days.

PLAGUE AT SAMARCAND.

The acknowledgment by the Russian Government of the presence of plague at Samarcand emphasizes the fact that for the last fifty-five years, with the exception of the epidemic outbreak at Vetljanka in 1878–79, Russia and Europe have been free from this disease. The outbreak at Vetljanka, a small Cossack village on the right bank of the river Volga, about one hundred and fifty miles from Astrachan, though pretty well localized was, considering the small population involved, a serious one. About four hundred and fifty deaths occurred during the epidemic.

Samarcand, in Asiatic Russia, is now a town of 30,000 inhabitants, and about 130 miles east of Bokhara. It is the capital of the province of Zerafshan, but is best known as the former capital of the great empire of Tamerlane, and it still contains his tomb.

The continued presence of plague in India, its appearance at Samarcand, the unfortunate laboratory experience at Vienna, have directed renewed attention to the disease.

"BOO-HOO" FEVER.

Walter F. Robinson, M.D., U. S. Medical Inspector at Honolulu; Lecturer on Electro-Therapeutics, Albany Medical College, gives the following account of a disease which it would seem, might be termed nostalgia, by a new name:

Shortly after the troops were settled in Honolulu there appeared among them a peculiar complaint somewhat resembling the grip. There were pains in all the bones, especially in the small of the back; generally severe headache, coated tongue, loss of appetite and some little fever.

It might be thought that these were mild attacks of malaria, more especially as there is malaria on the island. There were seldom chills with the attack, however, nor anything typical about the fever. It would be here to-day and gone to-morrow. The attacks would not last, as a rule, more than two or three days, and then the patient would feel as well as ever.

One symptom, however, was almost constant, namely, that of general depression and discouragement. The soldier would lose all his courage and interest in his duties and in the army in general.

All his good spirits would desert him, and he would only mope and wish to be sent home.

This condition is so peculiar and characteristic that it has received the name of the "boo-hoo" fever, and as such is known all over the island. Strangers are very apt to be attacked with it, and its cause is undoubtedly the new climatic conditions in which the system of the patient finds itself.

On this account the disease is sometimes called climatic fever. The bowels are generally bound up, and it is altogether a different disease from the diarrhea which is so common in hot climates.

Both quinine and phenacetin are of value in this disease, and as already stated, it is of short duration and yields readily to treatment. It may fairly be compared to the distemper which affects horses when they are taken from one climate to another.

The cases seemed to occur entirely in the first two weeks of our stay, and they are now seldom seen.

MUNYON'S "DOCTORS."

At Clerkenwell Sessions, James Edward Deane, forty-four, described as a medical practitioner, surrendered to his bail on an indictment charging him with stealing three small sums of money — 3*s*., 3*s*., and 4*s*. — belonging to his master, James Monroe Munyon, of "Munyon's Homeopathic Remedies," 121 and 123 Shaftesbury Avenue.

The allegation against the accused was that, whilst employed as a "consulting physician" at the establishment named, he sold "cures" taken from the stock before they were stamped, and failed to account

for the money in some cases. This, the prosecution said, he had no authority to do, and he knew full well it was an illegal act to sell a patent medicine without the government stamp. There were properly-stamped "cures" for him to dispose of. Three witnesses proved going to the premises and representing that they suffered from fictitious ailments, for which they purchased remedies. Deane was supposed to have pocketed the money.

Hawley Harvey Crippen, London manager for Professor Munyon, in whose absence he had full control, said Mr. Munyon engaged "Dr." Deane.

The Judge: You call him "doctor." What are his qualifications? — I don't know. (Laughter.)

Witness added that the accused was under him, and commenced with a weekly wage of £4, increased subsequently first to £5 and then to £6. What instructions Mr. Munyon gave prisoner he did not know.

When did the professor last leave for America? — In May.

At that time did you know that the Medical Council were taking a special interest in Munyon? — They were taking a special interest in Dr. H——.

What university has the honor of Professor Munyon? He has an honorary degree from the University of Tennessee.

You are called "doctor." You are not qualified? — I don't pretend to be.

You can't get a qualified man to take on the position in London? — I beg your pardon; I can get half-a-dozen reputable doctors.

One has been struck off for occupying that position? — He has, sir.

Have you said, "I have heard customers coming and complaining that the medicines were swindles?" — I don't think I said swindles. (Laughter.) I might have.

Did you say also, "I have given instructions to fill the 4*s.* bottles with the 1*s.* pilules and sell them to the public at the 4*s.* price, representing them to be the stronger medicine?" — I did, sir.

The 4*s.* and the 1*s.* "cures" are identical, aren't they? — No.

You advertise twenty-four remedies. Aren't they all the same? — No.

Can you tell me any other ingredient than sugar and water in these "cures?" — I don't think I need answer that question.

Mr. McConnell: We need not inquire too deeply into this.

Do you know Mr. Dixon, of Toronto? — Yes.

And that he swallowed two dozen of Munyon's stuff to show what he thought of it? (Laughter.) Was there a strong article about Munyon in a certain medical paper? — Doctors are always jealous of one another. (Laughter.)

But Munyon is not a doctor? — True; but his medicines are such a success that they don't like their patients being taken away. (Laughter.)

The Judge: You advertised to give away 10,000 samples. Did the public rush for those? — Rather; we distributed 20,000.

The defence was that Munyon instructed Deane to act as he thought best, and to recoup himself out of the sales for any expense he was put to in his position.

The jury returned a verdict of not guilty. — *Food and Sanitation*, London, October 1, 1898.

THERAPEUTIC NOTE.

ANTISTREPTOCCIC SERUM. — At a recent meeting of the Obstetrical Society of London, Dr. J. Walters and Mr. A. Walters[1] presented notes of a case of septicemia of puerperal nature, which was successfully treated by the antistreptococcic serum. The case seems to have been one of moderate severity, although strongly pronounced. Before the administration of the serum (ten cubic centimetres of antistreptococcic serum of a local preparation, injected subcutaneously), patient had a temperature of 103° F., pulse 120; there was intense headache, offensive local discharge and an urticarial rash. A few hours after the injection patient appeared bright and cheerful and the temperature had fallen to 98° F. There was, however, another, though insignificant, rise of temperature on the next day to 100.4° F., and another ten cubic centimetres was again injected with similar good results. After this the patient continued improved, but this second injection seems to have been followed by great depression of several days' duration and by albuminuria of a transient nature. The authors have no doubt that the recovery was due to the employment of the serum.

Correspondence.

EXPERT MEDICAL TESTIMONY.

BOSTON, October 3, 1898.

MR. EDITOR: — From the *Century Dictionary* we learn that an expert is: "In *law*, a person who by virtue of special acquired knowledge or experience on a subject, presumably not within the knowledge of men generally, may testify in a court of justice to matters of opinion thereon, as distinguished from ordinary witnesses, who can in general testify only to facts."

We doubt if ever before we have discovered a definition more completely satisfactory in every respect. Many times we have sat in a court of justice and listened to the outpouring by medical experts of knowledge, so marvellously "special," that mere "statements of facts" have seemed to us, by contrast, uncommonly dull and out of place. We have gained, moreover, from these experts, ideas of anatomy, physiology and pathology so foreign to the knowledge of physicians generally, that we wondered if the court and jury fully appreciated the splendid opportunities afforded them for acquiring an almost superhuman insight into the workings of the human mechanism, both in its normal condition and in the blighting clutch of disease.

We used to think, for instance, when a person received a blow upon the head, of sufficient violence to bring about temporary unconsciousness, that the nervous phenomena which followed were due to perverted function of the traumatized cranial contents. In the light of expert or special acquired knowledge, we now see our error. If the victim of the injury is a woman, we know that her nervous symptoms are but the manifestation of an anteflexed or retroverted uterus and a criminal lust for gain. In the male, such traumatisms are almost invariably followed by a disturbance in the delicate mechanism of the truth-telling centres of the cortex, which results in a condition designated by certain experts, "traumatic mendacity." This, like most other nervous perturbations due to injury, runs a very *bizarre* course and invariably terminates by *restitutio ad integrum*, immediately after the award of damages. Its genesis is little short of marvellous. Given the case of a street laborer who receives an injury through the careless-

[1] The Medical Press, October 12, 1898.

ness of the servant of some corporation. Little does the ordinary medical man dream of the power of that injury to cause a complete moral overthrow and evoke a fund of intuitive knowledge regarding neurology! Within twenty-four hours we find this supposedly grossly ignorant laborer thoroughly conversant with hysterical stigmata of every kind, and as the elasticity of his conscience is equalled only by that of his field of vision, we find him expanding the former and contracting the latter as circumstances demand. This is but one of the many possibilities afforded by the trauma. We have discovered that persons thus suddenly benighted by injury mendaciously conceal at times all evidence of sensibility in a limb, even under the test of strong electrical stimulation.

From the same expert sources we have gained such a fund of knowledge concerning the structure and function of the nervous system in general as to make even the French or romantic school of neurologists green with envy. Many of the diagnostic signs, upon which we formerly laid great stress, have entirely lost their significance, and all our old ideas as to prognosis are completely overthrown, for we now fully realize that most of the traumatic nervous conditions which we were wont to regard as next to hopeless will yield to the curative influence of gold, if only it be exhibited in sufficient amount.

In the old days we were so misguided as to look with some apprehension for the future of an injured joint in a person past middle life, and, with our vague notions of pathology, used to be on the lookout for a complicating condition of chronic rheumatoid arthritis. It is now as plain as day to us that the stiffness and limitation of motion which we observe in such cases is simply and solely the result of willful disuse.

The heart is an organ about which our antiquated absurd notions have been reduced to the vanishing point, and we can hardly find words to express the surprise we felt when brought to the realization of our simply awful ignorance concerning the lack of danger attendant upon violent exercise or emotion in persons afflicted with organic cardiac disease. Only now do we fully appreciate the power for good in such cases, which underlies the excitement of railway accidents and other catastrophes, and we hope soon to be able to induce all our cardiac cases, especially those with diseased myocardium, to institute a regular course of exercise, such as being dragged along by a rapidly moving trolley car or making daily ascents in boiler explosions.

In the Cimmerian darkness of ignorance in which we formerly blindly wallowed, we were wont to consider that the edema of cardiac and renal disease usually followed perfectly definite pathways, but in the guiding light of expert testimony we are brought face to face with its vagaries and are no longer betrayed into neglecting both heart and kidney as the source of those limited forms of edema which are frequently observed in the victims of so-called traumatic affections.

It is our hope that we have sufficiently demonstrated the superior value of expert medical testimony, of "special acquired knowledge, presumably not within the knowledge of men generally," as distinguished from that of the ordinary witness who must in general limit himself to the statement of bald fact, and we gratefully acknowledge our indebtedness to the expert for forcing upon our attention matters relating to the theory and practice of medical science which seem little short of revelation. We have often sought to discover the source whence comes this knowledge so far beyond the scope of the average human mind, but always in vain. No institution of medical learning within the ken of mortal man seems wholly adequate to the production of such prodigies. Regarding the genus analytically we find that it is commonly subdivided into two species, the peculiarity of the one being to magnify, and of the other to minimize, all matters coming under its observation. Let us take our Gulliver and investigate the medical schools of Brobdingnag and Lilliput.

Very truly yours,

JUSTITIA.

METEOROLOGICAL RECORD

For the week ending October 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A. M.	Relative humidity. 8.00 P. M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A. M.	Direction of wind. 8.00 P. M.	Velocity of wind. 8.00 A. M.	Velocity of wind. 8.00 P. M.	Weather. 8.00 A. M.	Weather. 8.00 P. M.	Rainfall in inches.
S...23	29.90	54	60	47	69	60	64	W.	W.	13	14	C.	C.	
M..24	30.36	56	66	45	69	73	71	S.W.	S.W.	9	16	C.	O.	
T...25	30.32	58	68	48	90	77	84	S.W.	S.	11	12	C.	C.	
W..26	29.82	63	68	56	89	93	91	S.E.	S.	6	24	O.	LR.	1.42
T...27	29.97	52	66	38	78	62	70	S.W.	W.	17	9	O.	C.	.40
F...28	30.43	40	46	34	71	74	72	N.	E.	9	9	O.	O.	
S...29	30.34	42	46	38	94	96	95	N.	N.	9	9	H.	LR.	.06
☞	30.03	52	60	44	80	76	78			11	13			.27

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 29, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1133	370	8.56	12.22	3.12	1.94	2.16
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	—	—	—	—	—	—	—
St. Louis	622,000	—	—	—	—	—	—	—
Boston	528,463	182	72	10.45	10.45	3.30	4.40	1.65
Baltimore	502,389	185	58	15.12	10.80	2.70	5.40	6.48
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	360,000	—	—	—	—	—	—	—
Pittsburg	350,000	—	—	—	—	—	—	—
Washington	277,000	120	39	16.15	10.20	3.40	5.10	.85
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	48	15	13.02	6.51	2.17	2.17	2.17
Nashville	87,754	40	11	15.00	12.50	2.50	—	12.50
Charleston	65,065	32	10	6.25	15.75	3.26	—	—
Worcester	109,340	32	4	6.30	6.30	6.30	—	—
Fall River	96,919	—	—	—	—	—	—	—
Cambridge	89,734	22	8	9.30	16.60	9.30	—	—
Lowell	85,641	41	14	7.32	19.52	2.44	2.44	2.44
Lynn	68,733	15	6	—	6.66	—	—	—
New Bedford	66,340	20	11	20.00	10.00	15.00	5.00	—
Somerville	61,101	14	2	21.42	14.28	14.28	—	7.14
Lawrence	57,963	18	11	27.77	—	5.55	—	22.22
Springfield	56,501	21	7	4.32	12.48	—	—	8.32
Holyoke	43,424	9	3	33.33	—	—	—	11.11
Brockton	37,778	10	0	—	10.00	—	—	—
Salem	36,883	12	4	—	—	—	—	—
Malden	34,813	9	4	—	—	—	—	—
Chelsea	33,468	10	5	30.00	20.00	—	10.00	—
Haverhill	32,032	12	2	25.00	8.33	25.00	—	—
Gloucester	29,589	—	—	—	—	—	—	—
Newton	29,716	—	—	—	—	—	—	—
Fitchburg	29,436	4	0	25.00	50.00	—	25.00	—
Taunton	28,167	9	3	11.11	22.22	—	11.11	—
Everett	28,538	7	3	42.84	—	—	—	14.28
Quincy	23,549	2	0	—	—	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	4	2	—	—	—	—	—
North Adams	20,971	4	1	25.00	—	—	—	—
Chicopee	17,843	1	1	—	—	—	—	—
Medford	16,511	4	0	—	—	—	—	—
Newburyport	14,915	3	1	—	—	—	—	—
Melrose	14,032	5	1	—	—	—	—	—

Deaths reported 2,031: under five years of age 669; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 235, consumption 250, acute lung diseases 230, diarrheal diseases 71, diphtheria and croup 57, typhoid fever 53, whooping-cough 18, scarlet fever 11, cerebro-spinal meningitis 10, malarial fever 2, erysipelas 2.

From whooping-cough Washington 7, New York 4, Boston 3, Providence and Haverhill 1 each. From scarlet fever New York 6, Boston 2, Providence, Worcester and Everett 1 each.

From cerebro-spinal meningitis New York 6, Holyoke 2, Washington and Providence 1 each. From erysipelas New York and Baltimore 1 each. From measles New York 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending October 22d, the death-rate was 18.8. Deaths reported 4,043; acute diseases of the respiratory organs (London) 283, diarrhœa 250, fever 100, diphtheria 72, measles 48, whooping-cough 36, scarlet fever 32.

The death-rates ranged from 11.4 in Cardiff to 30.2 in Salford; Birmingham 21.4, Bradford 14.3, Gateshead 22.6, Hull 20.9, Leeds 19.4, Liverpool 24.4, London 17.3, Manchester 23.5, Newcastle-on-Tyne 26.4, Nottingham 20.5, Sheffield 23.7, Swansea 18.4, West Ham 15.1.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, November 16, 1898, at 8 P. M.

At 8 o'clock. Dr. G. G. Sears: "A Case of Sarcoma of the Mediastinum."

At 8.15 o'clock. Dr. J. H. Wright will show pathological specimens of unusual interest.

At 8.30 o'clock. Dr. J. H. Morse: "The Frequency of Rickets in Infancy in Boston and Vicinity." Discussion by Drs. T. M. Rotch, E. M. Buckingham, A. H. Wentworth and J. W. Bartol.

J. B. OGDEN, M.D., *Secretary*,
Harvard Medical School, Boston.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. — The annual meeting of this Association will be held in the City of New York, on Tuesday, Wednesday, Thursday and Friday, May 23 to 26, 1899.

C. B. BURR, M.D., *Secretary*.

NEW YORK STATE ASSOCIATION OF RAILWAY SURGEONS.— The eighth annual meeting of this Association will be held in the Academy of Medicine, No. 17 West Forty-third Street, New York City, Thursday, November 17, 1898. The officers of this Society are:

C. B. HERRICK, M.D., *President*, Troy.
GEO. CHAFFEE, M.D., *Secretary*, Brooklyn.

RECENT DEATH.

DAVID ROBERT DEWEY, M.D., M.M.S.S., died in North Adams, November 5, 1898, aged thirty-four years.

BOOKS AND PAMPHLETS RECEIVED.

Brain: A Journal of Neurology. Edited for the Neurological Society of London by A. de Watteville. London. 1898.

Intravenous Injection of Normal Saline Solution. By Horace Tracy Hanks, M.D., LL.D., New York. Reprint. 1898.

Histology: Normal and Morbid. By Edward K. Dunham, Ph.B., M.D., Professor of General Pathology, Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. Illustrated with 363 engravings. New York and Philadelphia: Lea Brothers & Co. 1898.

Clinical Lectures on Mental Diseases. By T. S. Clouston, M.D., Edin., F.R.C.P.E., Physician-Superintendent of the Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases in the University of Edinburgh, etc. Fifth edition. Philadelphia and New York: Lea Brothers & Co. 1898.

Affections Chirurgicales du Tronc, Statistique et Observations. Par le Dr. Pollaillon, Chirurgien de l'Hôtel Dieu; Professeur agrégé à la Faculté de médecine de Paris; Chargé de cours de Clinique annexe; Membre de l'Académie de Médecine. Paris: Librairie Octave Doin, Editeur. 1898.

Elements of Histology. By E. Klein, M.D., F.R.S., Lecturer on General Anatomy and Physiology, and J. S. Edkins, M.A., M.B., Joint Lecturer and Demonstrator of Physiology in the Medical School of St. Bartholomew's Hospital, London. Revised and enlarged edition. Philadelphia and New York: Lea Brothers & Co. 1898.

A Laboratory Guide to Urinalysis and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in the Medical Department, University of Vermont; Member of the American Chemical Society and of the Chemical Societies of Paris and Berlin, etc. Fourth edition. New York: William Wood & Co. 1898.

Affections Chirurgicales du Tronc, Region Ano-Rectale, Maladies Urinaires Commune aux Deux Sexes, Maladies des Organes Genitaux de l'Homme. Par le Dr. Pollaillon, Chirurgien de l'Hôtel-Dieu; Professeur agrégé à la Faculté de médecine de Paris; Chargé de cours de clinique annexe; Membre de l'Académie de Médecine. Paris: Librairie Octave Doin, Editeur. 1898.

A Text-Book of Pathology. By Alfred Stengel, M.D., Instructor in Clinical Medicine in the University of Pennsylvania; Professor of Clinical Medicine in the Woman's Medical College; Physician to the Philadelphia Hospital; Physician to the Children's Hospital, Philadelphia, etc. With 372 illustrations. Philadelphia: W. B. Saunders. 1898.

The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, M.D., Vienna, M.R.C.P., Lond., M.R.C.S., Eng., Clinical Assistant, Hospital for Sick Children, Great Ormond St.; Curator of the Museum, Pathologist and Registrar, Great Northern Central Hospital. London: The Rebman Publishing Co. 1898.

Memoirs of Pliny Earle, M.D., with Extracts from his Diary and Letters (1830-1892) and Selections from his Professional Writings (1839-1891). Edited, with a General Introduction, by F. B. Sanborn, of Concord, former Chairman of the Board of State Charities of Massachusetts and Inspector of Charities. Boston: Damrell & Upham. 1898.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., LL.D., F.R.C.P., Emeritus Professor of Obstetric Medicine in King's College, London; Examiner in Midwifery to the Universities of Cambridge and London. Seventh American from the ninth English edition. Philadelphia and New York: Lea Brothers & Co. 1898.

Diseases of Women: a Manual of Gynecology, designed Especially for the Use of Students and General Practitioners. By F. H. Davenport, A.B., M.D., Assistant Professor in Gynecology, Harvard Medical School; Assistant Surgeon to the Free Hospital for Women, Boston. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1898.

The Principles and Practice of Hydrotherapy, a Guide to the Application of Water in Disease, for Students and Practitioners of Medicine. By Simon Baruch, M.D., Visiting Physician to the J. Hood Wright Memorial (formerly Manhattan General) Hospital; Member of the New York Academy of Medicine, etc. With numerous illustrations. New York: William Wood & Co. 1898.

Diet and Food Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D., Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women; Author of "Uric Acid as a Factor in the Causation of Disease." With five illustrations. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1898.

A Clinical Text-Book of Medical Diagnosis for Physicians and Students. By Oswald Vierordt, Professor of Medicine at the University of Heidelberg, etc. Authorized translation with additions. By Francis H. Stuart, A.M., M.D., Member of the Medical Society of the County of Kings, New York, etc. Fourth American edition from the fifth German, revised and enlarged. Philadelphia: W. B. Saunders. 1898.

The Principles and Practice of Medicine, designed for the Use of Practitioners and Students of Medicine. By William Osler, M.D., Fellow of the Royal Society; Fellow of the Royal College of Physicians, London; Professor of Medicine in the Johns Hopkins University and Physician-in-Chief to Johns Hopkins Hospital, Baltimore. Third edition, entirely revised and enlarged. New York: D. Appleton & Co. 1898.

The Refraction of the Eye, a Manual for Students. By Gustavus Hartridge, F.R.C.S., Senior Surgeon to the Royal Westminster Ophthalmic Hospital; Ophthalmic Surgeon and Lecturer on Ophthalmic Surgery to the Westminster Hospital; Ophthalmic Surgeon to St. Bartholomew's Hospital, Chatham, etc. With 104 illustrations. Ninth edition. London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co. 1898.

Ear Records; a Method of Recording Ear Cases. Arranged by John C. Lester, M.D., Fellow of the American Academy of Medicine; Fellow of the American Laryngological, Rhinological and Otological Societies; Assistant Surgeon, New York Eye and Ear Infirmary, etc.; and Vincent Gomez, M.D., Ophthalmologist to the Almshouse, Workhouse and Incurable Hospitals; Assistant Surgeon, New York Eye and Ear Infirmary; Instructor in Diseases of the Ear, New York Polyclinic, etc. New York: J. W. & Geo. H. Halm. 1898.

Manual of Chemistry, a Guide to Lectures and Laboratory Work for Beginners in Chemistry, a Text-Book Specially Adapted for Students of Medicine, Pharmacy and Dentistry. W. Simon, Ph.D., M.D., Professor of Surgery in the College of Physicians and Surgeons of Baltimore, in the Maryland College of Pharmacy and in the Baltimore College of Dental Surgery. Sixth edition, thoroughly revised, with 46 illustrations and eight colored plates, representing 64 chemical reactions. Philadelphia and New York: Lea Brothers & Co. 1898.

An American Text-Book of the Diseases of Children, Including Special Chapters on Essential Surgical Subjects: Orthopedics; Diseases of the Eye, Ear, Nose and Throat; Diseases of the Skin, and on the Diet, Hygiene and General Management of Children. By American Teachers. Edited by Louis Starr, M.D., Consulting Pedriatist to the Maternity Hospital, Philadelphia, etc., assisted by Thompson S. Westcott, M.D., Instructor in Diseases of Children, University of Pennsylvania, etc. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

Original Articles.

COMMON ERRORS OF GENERAL PRACTITIONERS IN DEALING WITH CASES OF PULMONARY TUBERCULOSIS.[1]

BY FREDERICK I. KNIGHT, M.D., BOSTON.

The errors of which I shall speak are well known to the members of this Association and encountered by many of them daily, and it would be an improper use of the time of the Association to weary it with a long discourse upon them, but I thought that they might be diminished by briefly calling attention to them here, if my remarks should be endorsed in the discussion by members of the Association.

(1) The first error to which I shall call attention is the failure to make an early diagnosis. An early diagnosis is not usually difficult since the discovery of the tubercle bacillus. Failure to make it, however, may be very serious, as it is especially true of this disease that the earlier its presence is discovered, the more amenable it is to treatment; whereas, if there is delay till the disease is self-evident and perhaps secondary infections have taken place, there is not much chance of restoring the patient to health. The most striking results of treatment of pulmonary tuberculosis in the great open health-resorts and also in sanitaria are in patients who present all the outward aspects of health from the start, who have never appeared as invalids.

Why is it that there is so often a failure to make the diagnosis early in those cases most promising of cure if taken in hand promptly, namely, those with morning cough and expectoration, but no fever or other general symptoms? The reason is that the patient naturally makes light of it, and perhaps contents himself with asking the doctor on the street for a prescription for a little cough, and this may be repeated several times without any suggestion of examination on the part of the physician, or until the patient looks and feels sick.

Another reason is that the physician may be the personal friend as well as medical adviser of the patient and shrinks from a knowledge of the results of a physical examination. This is also sometimes true in cases of a physician and a member of his own family.

The patient naturally considers a slight dry cough as due to some throat irritation, and a little hemoptysis as coming from the same region, but he should not be encouraged in this idea, as is too often the case, by the physician. Any cough should necessitate frequent examination of the chest, until the soundness of the lungs is proven by long acquaintance. Hemoptysis very rarely comes from any lesion of the throat, but usually from the bronchi. Another mistake is neglect to pay proper attention to fever, the physician very likely coinciding again with the patient that he has a "touch of malaria." Time and again have I seen patients with dry cough, chills and fever, not at all of malarial type, however, allowed to go on for weeks and months taking quinine, and no physical examination suggested.

(2) A second error is the failure to admit the gravity of the situation the moment it is discovered, and to put the patient at once in the best possible condition for recovery. Niemeyer used to say that the danger of a consumptive patient was "that he become tuberculous." In the light of modern pathology, I should say that the danger of a tuberculous patient is "that he become consumptive," that is, subject to secondary infections.

Unfortunately, too many physicians wait till the patient is consumptive, and then perhaps recommend expensive treatment, which is almost surely useless.

It is better, as a rule, that the patient also should be fully informed of the gravity of the situation, as in this way only will he give thorough co-operation in the effort for his recovery. Of course he should be fully impressed with the hope of recovery if the proper course is pursued.

(3) A third error is, while temporizing, in recommending treatment not only useless, but positively injurious. Giving medicines which take away the appetite and interfere otherwise with digestion does a great deal of mischief. Cough syrups, cod-liver oil and creosote do a large share in hastening the decline of patients. If any sedative is required it should be given in as simple a form as possible, and without syrup. I do not mean to say that cod-liver oil never does good, for there are patients who can take and assimilate it with ease, and greatly to their benefit, but it is cruel to prescribe it in a routine way without selecting cases and watching effects. Who has not many times seen patients with thickly coated tongues swallowing large doses of oil faithfully three times a day, eructating it all the time, and capable of assimilating neither that, nor any other food. Neither do I deny that creosote does good in some cases in modifying the bronchial secretion and improving digestion, but I believe that large doses as a rule take away the appetite and do more harm than good. It, like cod-liver oil, should be administered tentatively.

Another unfortunate mistake is often made in giving a general unrestricted order to "drink whiskey" as a preventive of consumption. The injudicious use of alcoholic stimulants, by depressing the vital forces, not only makes the patient irritable and dissatisfied with himself and everybody else, but very seriously interferes with his recovery.

Many patients also are seriously injured by being told to exercise when they should be kept quiet. This pertains especially to patients in a febrile condition.

(4) A grievous error is often committed in the matter of sending patients away from home. Sometimes those are sent away who have only a few weeks or months to live. Such patients in almost every case would naturally be better off at home.

Others are advised to change climate who cannot possibly afford to remain away from home long enough to do any good. They go away, live in miserable quarters, on poor food, and having spent all their money, in a short time are obliged to return. They naturally would have spent their little money to much better advantage at home.

Insufficient care is exercised in advising patients who *are* able and fit to make a change, as to the selection of a climate. Too often the advice is simply to "go South" or "go West." In such cases the patient often flits about from one climatic condition to another, without staying long enough to fully experience the modifying effect of any one, perhaps till the chance for beneficial action is past.

(5) The last error, a very grave one also, to which I shall call attention, is allowing the patient to go

[1] Read at the annual meeting of the American Climatological Association at Bethlehem, N. H., August 31, 1888.

without sufficient medical supervision. This disease, like any formidable enemy, requires constant watchfulness — to help gains promptly, and as promptly to stay relapses. The general practitioner himself is apt to fail in this because his attention is absorbed in critical acute cases; but he also fails to place his patients in proper medical care when he sends them away, whereas the presence of a physician skilled in treating such cases should often determine the selection of a residence for the patient.

These are a few of the more serious of the errors in dealing with cases of pulmonary tuberculosis, by means of which hundreds of lives are sacrificed which might have been saved.

Therefore it becomes us to iterate and reiterate our warnings as long as they continue to exist.

SUGGESTIONS: THE RESULT OF RECENT EXPERIENCE WITH PHTHISICAL PATIENTS.[1]

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

MR. PRESIDENT AND MEMBERS OF THE CLIMATOLOGICAL ASSOCIATION: — Even at the risk of being accused of "bringing coals to Newcastle" I venture to give you a few thoughts which have occurred to me of late; the result of experiences which I deem worthy of record.

Not only in my private practice but in my connection of late years with the Sharon Sanitarium for Pulmonary Diseases, at which place the express stipulation for entrance is that the cases shall be strictly in the "incipient" form in which the tubercular symptoms are *just beginning* to show themselves, I have been frequently impressed with the fact when patients have been sent for examination that one or two of what I believe to be the most important features in diagnosis, or rather prognosis, have apparently been overlooked by the physician in attendance. It has therefore seemed to me worth while to lay special emphasis upon these points at one of our meetings, hoping thereby to give that additional weight which comes from the utterances of an Association whose work is known to be in special directions.

It is a comparatively easy task to make the diagnosis of pulmonary tubercular disease even in the early stages, where the physical signs are definitely marked and the general symptoms are those so familiar to us all, but in those cases in which the signs, such as dulness upon percussion, changes in the respiratory murmur and even râles, are lacking, our powers of diagnosis and prognosis are often taxed to the utmost. It is in these latter cases that I have frequently found that the general practitioner has not paid sufficient attention to what I deem the most important symptoms, namely, the quality of the pulse, the temperature and condition of the digestive organs. Very often I have had cases sent to me as suitable for treatment with a hope of arrest of disease because of a lack of definite physical signs in the chest beyond possibly a few sparse râles or slight change in the respiratory murmur. I have been obliged, however, in these cases to give a very grave prognosis and have been unable to receive them as patients at the Sanitarium, simply because a weak, rapid pulse, more or less elevated temperature and poor condition of the stomach tell me that there is without doubt disseminated tubercular disease, even in the lungs, which renders the case a most unfavorable one for treatment, usually showing after death the almost universal dissemination of tubercle without perhaps marked breaking down of tissue.

It has been said by some one that he would prefer to treat a patient with two bad lungs and a good stomach, than one with one bad lung and a poor stomach.

While making due allowance for the more or less sweeping character of all such epigrammatic statements it has the very element of truth which I am endeavoring to emphasize. The importance of recognizing the unfavorable character of the cases I have mentioned cannot be overestimated, for it may make all the difference in the world to the poor patient as to whether he shall under such conditions be advised to go, for instance, to Colorado or other distant health resorts, with the chance of aggravating some of his most distressing symptoms, or, better, advised to make a less radical change and remain nearer home and friends.

I feel confident that those of our members here who live in the more noted health resorts will, from their experience, support me in emphasizing the importance of recognizing these facts which affect the whole future welfare of the patient.

In a word then; a rapid, feeble pulse, fluctuating temperature, dyspnea, a pasty or dusky complexion and poor digestion are symptoms very frequently if not usually entirely inconsistent with a truly *incipient* form of pulmonary disease even when the physical signs in the chest are very few or even entirely lacking under the ordinary method of examination by auscultation and percussion.

Such symptoms moreover should militate strongly against the advice usually given for cases of true incipient phthisis, more especially against those forms of treatment which involve radical changes of climate away from home and friends.

I now wish to refer to a subject upon which I have already written a short paper, prepared for, but not read, at the meeting of this Association two years ago at Lakewood.[2]

A short time previous to that meeting I had been so astounded and stirred by statements made not only by laymen but by some physicians at the State House in Boston concerning the proposed abolition of two most useful institutions for consumptives in the suburbs of the city, that I felt I must protest against what seemed to me the extravagance of what was said and done at that time.

What I dwelt upon then was chiefly the fact that in our enthusiasm for the results of recent bacteriological work we are in danger sometimes of forgetting the patient's position, and in our desire to prevent spread of disease are oblivious of the fact that by sweeping, unguarded assertions, we are not only creating a spirit almost of terrorism among the friends, but are causing mental anguish to the phthisical patient himself, who feels himself a leper, a constant menace to the health and comfort of those he loves.

I cannot think, in fact know I am not alone in having instances of the unreasonable, sometimes brutal, behavior among friends of patients, founded upon an exaggerated fear, as I deem it, of the infectious nature

[1] Read at the annual meeting of American Climatological Association at Bethlehem, N. H., August 31, 1898.

[2] A Plea for Moderation in Our Statements Concerning the Contagiousness of Phthisis. Boston Medical and Surgical Journal, 1896.

of tubercular disease which, we have been taught, loses its chief source of danger when moderate measures are used for the prevention of infection.

Let me cite an instance: A young, sensitive girl who had undoubted symptoms of tubercular disease, enlarged glands, cough, slight expectoration containing bacilli, etc., after a prolonged stay at Sharon was enabled to return to her home and take up some light occupation. Soon after, the mother came to me in distress with the following history. She had found her daughter sitting at a table alone, very pale, with a letter upon the floor at her side. Upon asking her what was troubling her, she finally only said, "Mamma, I am a leper," and handed her the letter from a member of the family, who had formerly been very kind to her, and to whom the girl had written that she was so well now that she should soon go to see her. The mother showed me the letter and I read, "On no account whatever must you ever enter my house again; you are a source of danger to everybody." I can let you imagine the effect of such brutal words to a young, delicate girl. A subsequent letter in answer to the mother's indignant reply, said, "The highest authorities tell us this is a very infectious disease, and I must think of my child."

This is only one of many similar instances in my own practice and that of others. It may be said that the physician's function is merely to point out the truth as far as he knows it, and that he cannot control the selfishness and brutality of those with whom he comes in contact. Very true, to a certain extent, but I maintain that we are losing sight of one of the highest and noblest functions of the ideal physician if in giving our rules for the protection of the well we do not use caution in our statements founded upon recent comparatively experimental work, and fail to inculcate at the same time that spirit of kindness and thoughtfulness for the feelings of the sick which humanity demands.

I trust that I shall not be misunderstood, as I stated in my previous paper on this subject. No one could possibly feel a greater respect than I for what bacteriology has brought us already and for what is still in store for us from that source; no one could possibly feel the importance more than myself of teaching patients and their friends the paramount importance of absolute cleanliness about the phthisical patient, of the careful disposal of the sputa, and attending to the general health of those in attendance, but I maintain that this can all be wisely and kindly done without causing, as a rule, this spirit of terrorism of which I have spoken and without making such sweeping and unjustifiable statements as "all homes for consumptives are a source of danger to the surrounding community" however regulated, and other, equally to my mind, false assertions. Let us keep in mind, moreover, that in getting the "juste milieu" of every question the pendulum swings far in both directions, and the history of medicine shows us plainly that in no other profession or walk in life do we have to proceed so cautiously as in ours before finally accepting new theories, enthusiasm for which carries us at first into extreme statements which afterwards often have to be greatly modified if not entirely retracted.

Of late, we are confronted with another statement made by Flügge, of Berlin,[2] regarding the possibility or probability of bacilli being carried in small droplets of mouth fluid into the air during the act of coughing. He maintains, moreover, that the chief danger of infection comes from these suspended droplets with bacilli in them and not from the dried sputa, as we have been taught hitherto by Cornet and many others.

Up to a comparatively recent period, owing to numberless experiments by competent men, our belief has been that the expired breath has no danger unless as in violent coughing, small particles of sputa happen to be expelled, but this statement would carry us still farther and make us believe that even with the destruction of the sputa we are still exposed to what Flügge believes to be the chief source of danger.

We are in search of truth at whatever cost, and if it can be proven that Flügge's statements are based on facts, we may be obliged to change our present views, but we are justified in waiting for further proof before accepting this extreme theory.

It would seem probable, too, with the now well-known experiments of Cornet and others in Europe, and of Hance, Gardner and many others in this country upon the dust taken from rooms in Sanitaria, hotels, hospitals, etc., that the danger from spread of bacilli by these droplets in the expired breath alone must be extremely small, when it has been shown many times that in those rooms where spitting upon the floor was prohibited, and proper cleanliness enforced, the number of bacilli found in the dust was practically nothing, and again I ask for caution in accepting, still more in promulgating, this later idea with undue haste.

I ask this especially from the following fact; another illustration of the rapidity with which many of the laity seize upon a statement made by physicians, and of the state of nervous apprehension into which many are thrown thereby. Several months ago my attention was first called to Flügge's statement by a patient who came to inquire if I felt there was danger to his daughter from the *cough* of a young lady living not very far from his own house in the country, and of whom his daughter saw little or nothing. Except for his evident nervous anxiety it was hard to be serious in my reply that I thought that the danger amounted practically to nothing, but upon asking him why he had entertained this idea, he said he had read in one of the Board of Health Reports of a neighboring State a remark or quotation which led him to believe that there was ground for his apprehension. Later, upon reading the quotation to which he referred I found it to be the statement of Flügge which apparently the Board of Health of his State had immediately accepted and stated as a fact, a position which with our present knowledge is to my mind unjustifiable.

To hide plain, proven facts for the sake of temporary comfort I regard as wrong absolutely, but that these facts may be made known wisely and without creating terrorism and with a minimum of mental suffering to the one most concerned I believe to be perfectly possible in most cases. I speak now from the point of view of the practitioner who naturally comes in contact with these different forms of human nature more than those whose work lies in the laboratory. The practising physician can note better than any one else the dire effect of the state of nervous apprehension into which so many are thrown by fear of disease. He also sees the mental suffering given to many a poor consumptive who by the exaggeration of others has been made to feel himself an outcast, and he learns in both instances the wisdom of guarded speech.

[2] Deutsch. med. Woch., October 13, 1887.

In closing, let me recall Koch's own words quoted in that most admirable essay on the "Prevention of Tuberculosis," by James B. Russell, of Glasgow, and reprinted for general circulation by the Massachusetts State Board of Health; an essay that should be read by every medical man. In fully recognizing the utterly different elements which enter into cases of phthisis as compared with other infectious diseases, he says, in the closing words of his famous treatise, "It seems to me the time has now come to adopt prophylactic measures against tuberculosis. But owing to the wide distribution of the disease, all steps taken against it have to deal with social relations, and it must be, therefore, carefully considered in what way and how far we may proceed without neutralizing, by unavoidable disturbances and other disadvantages, the benefit obtained."

To the courtesy of Dr. J. J. Curry, U. S. A., late of the Boston City Hospital Pathological Department, I am indebted for the manuscript of his paper read before the Suffolk District Society in Boston last spring, and soon to be published in the *Boston Medical and Surgical Journal*.[4] In this he gives the results of some experiments made while associated with Prof. Edwin Klebs at Citronelle, Ala., last winter. Although granting that the number of the experiments is small, he judges from his experience thus far that although very probably bacilli are found in a certain number of the small droplets expelled from the mouth during hard coughing and that hence certain precautions are wise, yet he believes that the dangers spoken of by Flügge are greatly overestimated.

Let us be careful then in promulgating the theories of those whose work hitherto has gained our confidence and whom we regard as teachers and leaders in our profession, lest in our zeal we go much farther than they themselves intend, and in so doing injure rather than aid the object we have in view.

Clinical Department.

SCORBUTUS IN A BABY WITH HEMORRHAGIC DIATHESIS.

BY JOSHUA C. HUBBARD, A.B., M.D., BOSTON.

THROUGH the kindness of the Boston Lying-in Hospital and the Infants' Hospital I am able to report almost the whole life history of the following case:

Eva McK. was born about half-past ten in the evening of March 9, 1898. Although there was nothing remarkable about the labor the baby was cyanotic and required stimulation. The next morning at four o'clock there was oozing from the cord and right conjunctiva. A fresh ligature stopped the bleeding from the cord though only temporarily, as it began again in a few hours. Another ligature was applied. The baby was cyanotic, breathing with difficulty and appearing almost lifeless. In the evening the bleeding from the cord again started and was again checked by a fresh ligature.

March 11th. Last night the baby vomited some blood. To-day some cerebral irritation shown by twitching of the eyelids, rolling of the eyes and convulsive movements of the arms. Hands and arms are of a yellowish tinge. In the evening convulsive movements of the head.

March 12th. During last night convulsive movements of the arms. During these attacks internal strabismus of both eyes. Baby lies with thumbs turned in, arms tightly flexed, legs crossed and whole body rigid. At times there is some retraction of the head.

March 18th. Blood appeared last night in both the vomitus and the dejections.

The baby was then transferred to the Infants' Hospital where she had no more hemorrhages. On March 30th she was transferred to the South Department as Klebs-Löffler bacilli were found in her throat on routine examination. I will quote nearly the physical examination made on entrance.

Rather emaciated. Desquamation on hands and feet especially, also on some other parts of the body. Cry not very strong. Skin of yellowish tinge mixed with red. Considerable rigidity of the extremities, especially of the arms. Elbows flexed. Impossible to fully extend them. Attempts to do so make the biceps muscle hard and its tendon prominent and rigid. The fingers are clenched tight, the thumbs in the palms. The feet cannot be extended beyond a right angle, the anterior tendons then becoming tense and showing under the skin as though they were shortened. Legs cannot be fully extended at the knees. Eyes are not abnormal externally. No rigidity of the neck. Left frontal region flattened on the vertex as compared to the right. Heart and lungs normal. Spine normal. Abdomen not examined because of dressing about cord. Excoriation about anus. No evidences of hemorrhage in the skin or mucous membranes.

Sometime in the latter part of August the baby was brought to the Out-patient Department of the Infants' Hospital with the following history:

Her food had been malted milk two drachms, water four ounces, lime-water one drachm, the water being warmed but not boiled. The baby had been doing well until two weeks previous when she began to grow sore all over, the ankles, wrists, shoulders and, a few days later, the knees swelling. Some bleeding from the bowels for the last two or three days and from the mouth on one day. No eruption had been noticed. The urine was scanty but not red. The baby was referred to the Summer Hospital where I saw her, and on August 30th made the following physical examination.

Well developed and nourished baby. Pale. Cries when moved. When quiet seems free from pain. Knees and thighs held flexed. Arms held thrown back with hands by head. Fingers and thumbs flexed. Cannot be fully extended, apparently held by the palmar fascia. Fontanelle small, not depressed. Slight umbilical hernia. Heart, lungs, liver and abdomen negative. Pupils equal. No stomatitis. Hard, nonfluctuating, tender swellings at distal ends of radii and ulnæ, sternal ends of clavicles, distal ends of femora and tibiæ. Large swelling on outer posterior aspect of left leg just below the knee-joint. Marked swellings at the junctions of the ribs with their cartilages, many of them of more even form than the ordinary rosary of rickets. No enlarged glands. No increased temperature.

The baby was given modified milk, orange juice one-half ounce three times a day, and later some brandy

[4] October 13, 1898.

every two hours. The dejections were of fairly good character. There was some vomiting.

By September 2d the swellings had already begun to decrease.

September 13th. Baby can now be handled without causing pain. Swellings above knees all gone, leaving now more evident the enlargements just below the heads of the fibulæ. Swellings by right wrist and ankles still present though much smaller than at entrance.

September 22d. Swellings at sternal ends of clavicles gone. Shape of rosary has changed so that now like that of rickets. No enlargements at knees. Distal ends of leg and forearm bones still swollen. Some anterior bowing of bones just above left wrist and a suspicion of motion at the epiphysis.

After the first few days the orange juice had been decreased as the baby did not like it. Her improvement continued on the smaller amounts.

Unfortunately, the hospital closed at this time and the baby had to be sent home. Although she had improved a great deal as regards the scurvy she had steadily lost weight, dropping from six pounds six ounces at entrance, to five pounds eleven ounces, and on October 8th she was reported to the hospital as dead.

MASSACHUSETTS GENERAL HOSPITAL.

REGULAR Clinical Meeting of the Medical Board, Friday, April 8, 1898, DR. C. B. PORTER in the chair.

DR. H. H. A. BEACH reported the following cases:

I. CHYLOUS CYST OF THE MESENTERY. LAPAROTOMY. RECOVERY.

II. INTESTINAL PERFORATION BY A FISH-BONE. INFLAMMATORY TUMOR. LAPAROTOMY. RECOVERY.

These cases are reported not alone for their rarity but for the interesting experiences they supplied in diagnosis and treatment. The first patient, a man fifty-six years of age, entered the medical side of the hospital under the care of Dr. R. H. Fitz on June 10th, having enjoyed good health until the year 1892, when he had an attack of pleurisy. Family history negative. Six months before admission he had soreness and pain in the epigastrium after eating, with eructations of gas, constipation, but no vomiting or headache. Appetite fair. Between four and five months after, during an attack of colic and vomiting, he noticed a movable lump in the abdomen. He had been obliged to give up work on account of abdominal pain and had slept poorly for a month. At times after waiting a long while passed a large gush of urine. Arcus senilis. Emphysema of lungs. Pulse regular and of fair strength. Radial arteries atheromatous. Above the pubes was found a softish dull mass the size of a clenched fist. On catheterization only a little urine was obtained and no diminution of the mass. By rectum a slight enlargement of the prostate but no connection with the mass was detected bimanually. The glands of the groins were slightly enlarged. Superficial varicose veins in both legs. Urine was normal and acid. Specific gravity 1.026. It contained no albumin nor sugar.

June 12th. The mass could be moved from just above the symphysis pubis to a position in the right loin corresponding to that of the right kidney.

Resonance in the right loin over the position of the kidney when the mass was displaced toward the pubes. The mass could be moved only a slight distance to the left of the median line. Second catheterization showed no difference in the mass. The daily amount of urine was normal. At times he had considerable pain in the tumor and could lie comfortably on the right side only.

Patient examined by Drs. Fitz and Beach, who did not think that the tumor was a floating kidney and advised transfer to the surgical service for exploration. Under ether the mass was found dull, firm, resistant, kidney-shaped and easily displaced from the right lumbar region to the pubes; its excursion limited by what seemed to be a pedicle springing from the right lumbar region. The solidity, shape and easily movable nature of the mass from the lumbar region to the pubes impressed me strongly as it did others who saw the case, with the belief that it was a kidney; but the unusual freedom of movement, which appeared to be greater than what I had ever observed in other cases of floating kidney, and its association with gastric symptoms raised doubts as to its renal origin.

An incision of four inches was made on the outside of the semilunar line and the omentum pushed to the left side. A coil of small intestine presented with a bulging mesentery that proved to be the mass felt from the outside. This was drawn into the wound and aspirated through a puncture of the mesentery. The contents were eight ounces of milky-looking fluid, on the surface of which oil globules appeared.

The cyst of retro-peritoneal origin developed between the mesenteric folds that connected it with the upper part of the small intestine. The mesentery was divided by an incision at right angles to the intestine and through that opening the sac was carefully dissected from its attachments. The mesenteric opening was then closed by a continuous silk suture and the abdominal wound closed with silver-wire sutures. Recovery was uneventful and the patient was discharged well in three weeks.

REPORT OF DR. F. B. MALLORY.

Cyst size of a large orange filled with white opaque fluid, like cream, microscope showed large fatty cells, numerous large and small drops of fat and irregular fat crystals, also cholestrine crystals. Microscopic examination of wall of cyst showed inner surface composed of vascular connective tissue; outer layer made up of fat and fibrous tissues containing many lymph follicles; the cyst probably arising from a dilated lacteal vessel.

The second case was that of a man who entered the hospital December 19, 1895, with a negative family history. Fifteen years ago while employed indoors was supposed to have had consumption; he coughed and raised blood. Has been well ever since with out-of-door employment. No specific history. Five weeks ago, without known cause, was seized in the night with chills. Has not felt quite well since, though he has continued his work (that of a stone-mason) to within a week.

One week after the chill he had pain localized in the left iliac region and would find it hard to stand erect. Has been feeling miserably, had chilly sensations and pain always in the left iliac region, worse at night and increased by retaining urine. Three weeks ago first noticed a bunch there of the size of his thumb

that has increased rapidly. Up to three days ago had a movement of the bowels every day.

Examination: A tall man with nothing peculiar about his attitude. Back and spine negative. Tongue moist, good color. Pulse regular but not of good quality, 85. Respiration 20. Temperature 99.6°. Chest negative. Urine 1.022, albumin and sugar absent. Abdomen soft, with no distension. In the left iliac region, not attached to the skin, is a mass six by three inches, slightly tender, not movable to any extent, somewhat elastic; no pulsation; no bruit. Dull tympany over whole mass. Large rectal enema readily retained. Inflation of colon, etc., per rectum does not change characteristics of the mass. Rectal temperature negative. No glands in the groin. No tenderness on pressing together iliac bones. Leucocytosis 16,200. Patient has a deep urethral stricture.

December 24th. Bowels moved after two compound cathartic pills and two ounces epsom salts. Copious dark fluid movements containing blood.

December 25th. Stricture dilated.

December 26th. Temperature 99.4°. Mass now extends from the median line to the anterior superior spinous process of the ilium, and from the line of the umbilicus above to Poupart's ligament below. On deep palpation the mass seems to project to the right of the median line.

December 27th. Bowels moved by enema; no blood. Running slight temperature 99° to 99.6°. Pulse normal. Believing that the rapid development of the tumor was due to inflammatory deposit I decided to make an exploration with the view of settling that point and removing enough of the growth to determine its character, though I must confess that the outlook in favor of malignancy was most discouraging.

January 2d. Incision of four inches over the centre of the mass; the muscles and fascia were adherent to each other and to the peritoneum. The tumor was was not movable, and although fairly firm, the finger could be pushed through the most prominent part of it down to the iliac vessels lying beneath it. As the finger was withdrawn a few drops of pus were observed, and a fish-bone one and a quarter inches long, blackened at one end, followed. A piece of the tumor was removed for microscopical examination. A gauze drain was inserted and the wound partially closed with sutures.

January 3d. Temperature 101°.

January 4th. Temperature 99°. No abdominal disturbances.

January 5th. Temperature normal — gauze removed.

January 10th. House diet; the mass is diminishing; wound closing.

January 18th. Mass hard but is smaller. Very little discharge from the sinus.

January 30th. Up and about the ward.

February 2d. Discharged to attend as an out-patient.

The tumor continued to diminish. An abscess finally developed at the outer third of the groin, which opened spontaneously and discharged for a few weeks. It then closed and he has remained well ever since, resuming his occupation as a stonemason. Patient exhibited. Only a small scar indicates the seat of exploration. Upon careful examination of the abdomen no induration can be detected.

Dr. Whitney's report — A fragment of tissue showing simple fibrous tissue with round-celled infiltration. The foreign body removed proved to be a fish-bone.

DR. A. COOLIDGE, JR., reported a case of

CEREBRO-SPINAL FLUID FROM THE NOSE.

This case is interesting perhaps more from a neurological than from a laryngological standpoint. But it is in line with a class of cases which have been reported under the head of nasal hydrorrhea, which is described as the periodic flow of a large quantity of a serous fluid from the nose, almost always from one side only, and brought on sometimes by mental tire or similar strain, sometimes without cause and often only when the head is bent forward. Some cases seem to be merely an excessive degree of the flow of a vasomotor rhinitis, but in many the essential features of this neurosis are absent, and vague attempts have been made to explain it as due to some local trouble of the fifth nerve, and the fluid is supposed to be the normal nasal serum. On the other hand, Tilleau describes cases in which after trauma with what has been proved to be a fracture of the cribriform plate, cerebro-spinal fluid has escaped through the nose when the head is bent in a certain position. The history of this case is as follows:

O. M., boy, aged thirteen. Health always good. In June, 1893, he had a violent "cold" which laid him up for a week. His mother thinks he had lacrymation from both eyes for a few days, and a watery discharge from the right nostril only, no pus, no cerebral symptoms. Since that time the dropping of watery fluid has been constant from the right nostril whenever the head is bent well forward; none with the head erect and no sense of dropping into the throat. I first saw him on January 18, 1897. He was apparently in robust health. There was absolutely nothing abnormal to be seen in his nasal cavities or pharynx, and no evidence of anything in the sinuses. Within twenty seconds after his head is bent forward a clear, watery fluid begins to drop from his right nostril, and continues steadily while his head is in this position at the rate of one drop every five seconds. The same is true if he lies on his face. I made careful experiments to find if the flow went back into his pharynx when his head was erect or when he lay on his back, and concluded that it did not. Neither could I see accurately where the fluid came from, but I thought that it came from the upper part of the nasal cavity, rather than from the whole mucous membrane. If the fluid were allowed to flow for half an hour he complained of headache. I collected three ounces, which Dr. E. S. Wood kindly examined, and sent the following report:

Pale, slightly alkaline.
Specific gravity 1.010.
Chlorine 0.046 in 10 c. c.
Albumin, very slight trace.

"This is exactly the composition which I have found in specimens of cerebro-spinal fluid."

The patient was also seen by Dr. Walton, who found nothing abnormal in the eyes or sensations of the face. I tried different medication locally and generally, including atropine, but produced no results. Since that time there has been no change. The dropping has now been constant for nearly five years, and the boy does not seem to have suffered in the least. I cannot find anything abnormal in the nose itself, and must leave to others the explanation of how this fluid gets into it.

TUMORS OF THE NASO-PHARYNX.

The two cases which I briefly report show types of tumors which are not very uncommon, but which are sometimes mistaken for other growths. They are either fibromata or fibro-sarcomata, hard and vascular, and attached by a broad base to the basilar process of the occipital and sphenoid bones. They do not tend to become adherent to surrounding structures nor to increase their base of attachment, but in growing they follow the lines of least resistance, and consequently present two lobes, one round, filling the naso-pharynx, the other long and finger-shaped, filling one nasal cavity, even appearing through the external nostril. They are sometimes mistaken for adenoids or for simple mucous polypi and sometimes for a malignant sarcoma with a grave prognosis, after a microscopical report of a specimen removed for the purpose.

These tumors are not malignant, although some of them, especially the fibro-sarcomata, require years and sometimes repeated operations before they entirely disappear. They are found most frequently in young adults, from puberty to twenty years of age, but we have seen in the clinic three or four cases in children from eight to twelve. They occasionally give rise to spontaneous bleeding, which may be enough to be serious. The symptom which first attracts attention is obstruction to nasal breathing; complete on the side containing the nasal lobe, and partial on the other from the growth in the post-nasal space. A diagnosis can be made by the finger in the naso-pharynx. The best operation for their removal I will describe under the cases which I now show.

These two cases have so much in common that I will begin by combining their histories.

A. G. D. and W. G., boys, sixteen years of age, entered the hospital in the autumn of 1895, two and a half years ago, in the services of Dr. Porter and Dr. Warren, who kindly turned them over to me for operation. The patients had noticed increasing obstruction to nasal breathing for over a year, until finally they breathed entirely through the mouth. The naso-pharynx was nearly filled with a hard, smooth tumor attached to the basilar process, and a nasal prolongation was visible though the external nostril, in A. G. D. on the right, in W. G. on the left side. Under ether in the sitting position, a cord was first passed through the unobstructed side and brought out of the mouth and a post-nasal sponge attached, which was held to one side out of the way, so that the vault could be immediately plugged in case of bleeding after removal of the growth. The nasal projection of the tumor was then seized with a clamp through the nostril, and a loop of stout piano wire in an ecraseur passed around it and through the obstructed nostril into the pharynx, where with the finger it was placed as close as possible to the attachment of the tumor. The wire was then drawn around it and slowly tightened until in spite of this considerable blood began to appear. It was then cut through quickly, and in one case, the simple fibroma, the post-nasal plug drawn in and left for thirty-six hours. A slow cutting with the cold wire will sometimes succeed without any bleeding. The tumor is so hard that the ordinary snare ecraseur and finer piano wire used in operations in the nasal cavity are altogether too weak for the work. Rose position for this operation for one accustomed to it has decided advantages over the erect one.

Of these two cases one, A. G. D., was a hard, vascular fibroma. A year later all trace of the pedicle had disappeared, and now not only is he free from all symptoms, but inspection does not show anything abnormal except that we can see directly into the sphenoidal cavity on the right side through an enlarged opening.

The other case, W. G., was a fibro-sarcoma, a drawing of a section of which, made by Dr. Goodale at the time, I pass around. This pedicle did not shrivel up, but slowly increased in size, so that a year later I again removed a piece with an ecraseur. I have in the past attacked this and similar stumps with cutting instruments and cautery, but I have concluded that this does more harm than good. The less it is irritated the better. If it is possible it should be snared off, but it finally stops growing and slowly disappears. In this case for more than a year nothing has been done, it is steadily decreasing, and now no longer causes obstruction, although the stump is still plainly visible. I have seen other growths of this kind with the same microscopical appearance entirely disappear, and I have so far not seen any which have acted malignantly.

DR. J. J. PUTNAM reported the following

CASE OF SPLANCHNOPTOSIS AND ACHYLIA GASTRICA WITH MELANCHOLIA.

I wish to present the following as a joint contribution from Dr. Joslin and myself and in so doing I desire to express my full appreciation of Dr. Joslin's skilful assistance in this and kindred investigations, without which my own part would have been impossible.

The case to be presented is one of almost universal splanchnoptosis, which is of peculiar interest because of the absence of some of the causes to which that condition has been referred by other observers.

The patient is, as will be seen, a tall spare man of seventy-one, who for the greater part of his life has been a captain of a coasting vessel. Although he shows at present marked symptoms of neuropathic character, this temperament did not come to him by inheritance, since he belongs to a large family of strong men and women, above the average size and weight. He has himself been the slenderest of ten or eleven children, his weight never exceeding 168 pounds, but he has led the reverse of a sedentary life, and until three years ago the only distinctly unfavorable influences to which he had been exposed have been the monotony and hard fare of a seaman's life and, perhaps in consequence of this, a persistent constipation. He has not been immoderate in the use of food or drink. His own children enjoy good health.

In December, 1894, he had what was supposed to be an attack of the grippe, lasting some three weeks. About four months later he began to suffer from lassitude and depression, and these symptoms have rendered his life miserable ever since, so that he dreads to go to sleep, because of the overwhelming and intolerable sense of misery and melancholy which he knows will come with the awakening, and will almost drive him to suicide. It was this state of depression, against which he has struggled in vain, which led him to seek my advice, and the existence of the symptom is the more striking from the fact that, as any one can see on talking with him, he is not a natural weakling, but a man of strong character and will.

In connection with the above symptoms and beginning with them has been a complete loss of appetite. This holds for all varieties of food, so that he eats only from a sense of duty. After meals there is a band-like feeling about the abdomen. Pain, nausea, vomiting, belching and diarrhea are absent. He has always had a little dyspepsia chiefly manifested by slight constipation. No headache or dizziness. In the last three years he has lost twenty pounds.

The patient is a tall, thin, cachectic-looking man, weight 137 pounds. The pupils are equal and react to light; the tongue is covered with a thick whitish coat which he daily scrapes off. This condition of the tongue has existed for ten years. Pharyngeal reflex present. Teeth poor. Heart not enlarged and no murmurs heard, but the radial arteries are markedly atheromatous. The abdomen is flat, the costal angle sharp and the aorta and common iliacs are plainly felt pulsating. The upper border of the stomach when distended with air is two to three finger-breadths above the umbilicus when the patient is in the horizontal position; when he is upright, it is at the umbilicus; the lower border reaches to the pubes. Liver dulness begins in sixth space, mammillary line, and ends in the same line, two finger-breadths above the umbilicus. The edge is readily felt and appears normal. Both kidneys are to be palpated, the right shows a considerable descent. Stiller's sign (movable tenth rib) is absent.

Examination of stomach contents. — Ewald test breakfast, March 13, 1898. By aspiration and expression one fluid ounce only was obtained. To make sure that the stomach was empty siphonage was employed and perhaps one-half fluid ounce more was secured. The contents, diluted with about ten ounces of water (used in siphoning) did not show any acid reaction to litmus paper. No free HCl was found, either by Congo paper or by Günzburg's reagent. The contents were not finely minced and looked undigested. Microscopically by the iodine test, but few of the starch granules showed concentric rings. No blood, mucous-membrane fragments, sarcinæ or lactic-acid bacilli were seen.

Second examination, March 16, 1898. Amount obtained after test breakfast, one and one-half ounces to two ounces. This was very slightly acid to litmus. Free HCl was shown to be absent by Congo and Günzburg's tests. Combined HCl was found absent by Ewald's modification of Sjoqvist's method. Lactic acid was present in considerable amount, but this test unfortunately was made some hours after the contents had been removed. Peptones were absent by Biuret test.

Third examination, March 30, 1898. Amount of gastric contents obtained one hour after test breakfast, one ounce, very slightly acid. Free HCl absent. Lactic acid absent. Odor very slightly sour. Peptones absent. A small clot of blood was found, and a good many cells suggestive of gastric origin, but no mucous-membrane fragments.

Examination of stools showed no excess of muscle or fat. No starch granules seen. No blood or pus.

Urine. — 1.032, color high, slightly acid; no albumin, no sugar. Rosenbach's reaction for indoxyl products showed them to be absent. Acidity in terms of one-tenth normal KOH solution before dinner = 22 c. c. Acidity in terms of one-tenth normal KOH solution one hour after dinner = 18 c. c.

Blood. — Reds 4,720,000. Whites 3,450. Hemoglobin about 87 per cent. It will be seen from all these tests that while the gastric digestion was absent, in striking contrast to it the motility of the stomach was normal or even above the normal average.

It is thus obvious that the patient has two distinct affections so far as the gastric conditions are concerned, each of which is capable of existing entirely without the other, namely, the absence of gastric juice and the presence of a gastroptosis of marked degree. Associated with the latter we have also a prolapse of the liver and kidneys and possibly other abdominal organs.

The subject of enteroptosis has been much studied of late, and amongst others has called out two valuable papers from members of our own circle, Drs. A. K. Stone[1] and F. B. Lund.[2]

The subject of achylia has also been recently treated with great thoroughness by Martius and Lubarsch, of Rostock.[3] Both these conditions are capable of existing independently and either of them as prominent signs of a condition of which neuropathic states are also a feature. The conclusions arrived at by Martius, after his very able discussion, are that achylia, while it may of course be secondary to atrophy of the stomach, may occur primarily as a peculiarity of the secretory and nervous functions, a peculiarity either congenital or at least resting on a congenital tendency. This condition may continue for years or for a lifetime without giving rise to well-marked symptoms, so long as the motility of the stomach is such as to enable it to pass its contents rapidly onward, and the intestinal organs remain competent for the whole task of digestion. When these fail severe anemias are apt to result. As a matter of fact it is found that the gastric mucous membrane, even in these cases of achylia simplex, soon becomes more or less altered, so that gastric atrophy is apt to result. In cases of achylia, gastroptosis is apt to be present in some degree, if one can judge from ten observations of Eichorn,[4] but on the other hand, the abnormal position of the stomach in gastroptosis, which must sometimes make the process of emptying itself a very difficult one, is apt to lead to acid fermentation, and also in some cases to a true hyperchlorhydria.

As regards the causes of gastroptosis, I will only refer to the fact that some of those which are frequently present and which seem to account for the greater prevalence of this misplacement in the opposite sex (tight lacing, pregnancy, lack of exercise) are here absent. Nor was the patient a gormand. If the affection was due to any physical cause, the only ones to be discovered are constipation, constant standing, a long frame and perhaps some muscular weakness attending on advancing years.

I should not have ventured to bring so distinctly an abdominal a subject before so many experts in medicine were it not that the study of this disease has from the very first, or at least since the original publication of Glénard (1885), been one which has commanded the strong interest of neurologists. Achylia occurs mainly among neuropathics, gastroptosis and movable kidney are found mainly among neuropathics. What is the connection between the two states and what further instruction can we draw from the present case?

I cannot rehearse the controversy which has accused first one and then the other of these conditions as being the cause of the associated state. A vicious circle doubtless exists, but beyond and apart from this fact it

is also obvious that in the abdominal condition and in the neuropathic condition we have to deal with twin signs, or rather with parallel signs out of a large number which could be enumerated, which stand to each other in no distinct relation of dependence. It has long been realized that peculiarities of the skeleton, of the skin, of the mucous membranes and of the vascular systems and the like, are apt to accompany feebleness of the nervous system, and Stiller[5] has pointed out that with gastroptosis and nephroptosis and neurasthenia of the "slender type," a movable tenth rib is usually associated. Retroversion of the uterus is common in cases of the same class and future investigations are sure to discover many more such signs. On the other hand, the remarkable immunity presented by patients with displaced uterus, stomachs and kidneys from nervous symptoms is equally noteworthy and points to a therapeutic inference of great importance.

Whether these disorders cause symptoms or not must depend in a great measure on the power of resistance of the individual nervous system and the form which the nervous symptoms will assume if they do occur in a given cause is determined in a considerable extent by chance. Just as the proverbial omnibus horse goes on dragging his weary load until he is taken out of the shafts and then collapses, so the nervous system is capable of bearing an almost infinite number of slight strains so long as other interests keep the machine as a whole tolerably in motion and maintain a sort of balance. Let this balance be disturbed, however, by some special illness, shock or strain, or by the attention being turned in one or another direction so that one disorder becomes more or less predominant for the time and this will form the centre of a sort of vortex, the force of which will be accentuated by the inflowing of the other morbid tendencies, which, formerly latent, now become manifest.

It need not, of course, be the case that the patient's conscious attention acts to break down the dam at one point; the whole process may occur below the threshold of consciousness and may simply concern the interplay of the vital functions as made possible through the lower nervous centres. But we see the working of the principle more easily when we are able to recognize that it is the patient's morbid attention which is accentuating one or another symptom. And conversely, it must often happen that although abdominal supporters and muscular exercise may do something, it is often with the higher functions of the nervous system that we must deal first if we would re-establish the old order of things, under which life was endurable even though not wholly satisfactory.

The following treatment was prescribed in the first instance to maintain the motility of the gastro-intestinal tract: (*a*) tinct. nucis vomicæ ten drops, three times a day, to be increased gradually to 30 drops, three times a day; (*b*) massage; (*c*) a laxative pill (Aloin Casc. Co.). In the second place attention was directed to the diet (*a*) to secure foods which, notwithstanding the lack of digestion in the stomach, would not irritate the alimentary canal further along. So all meat taken was previously minced and this rule applied in general to all the food. (*b*) Peptonized milk and prepared foods were given to help out the intestinal indigestion. The value of these artificial peptones has risen immeasurably in scientific medicine since it has been shown that they are capable of supplanting the foods from which they are derived. (*c*) It could be of no advantage to give pepsin to our patient because of the absence of HCl in the stomach. And it would be equally without result to give acidum hydrochloricum dilutum even in considerable doses as is plain when one considers that two or three eggs will combine with some one hundred and fifty drops of the dilute acid without showing a trace of free HCl. The vegetable ferment[6] derived from pineapple juice might be of value in this case since this ferment (Bromelin) acts best in neutral solutions, but will also act in faintly acid or alkaline ones. The popular prejudice regarding the indigestibility of pineapples should be confined to the cellulose.

The third indication for treatment was to raise the nutrition of the body, so as to enable the patient to cast off his melancholia. This was attempted (*a*) by giving five daily meals with alcohol in tonic doses and Mist. Glyconin. Co.—a preparation of obvious nutritive value. (*b*) By two daily rests, alternating with exercise and recreation, the body metabolism of the patient was spared and the mental symptoms combated. (*c*) Perhaps the greatest aid to recovery came from the encouragement given the patient which was markedly enhanced by his steady gain of weight.

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(To be continued.)

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D. AND W. D. HALL, M.D.

BACTERIOLOGY.

In a paper by Uhthoff[1] read at the International Congress at Moscow, August, 1897, the bacteriology of corneal and conjunctival inflammations is very well presented. Insomuch as a bacteriological classification is not yet possible, clinical appearances must still be relied upon. The Frænkel-Weichselbaum diplococcus may be considered as the cause of the serpiginous ulcer, but it must not be forgotten that the atypical appearing cases are frequently due to the staphylo-streptococcic infection. The typical ulcer has not yet resulted from pneumococcus inoculation. The hypopion is sterile unless perforation has taken place. The keratitis of gonorrhea and diphtheria is due to accidental infection with other bacteria of suppuration. Of the conjunctival inflammations that caused by the gonococcus is well-marked in character. Gram's method is negative. The Frænkel-Weichselbaum diplococcus gives rise to a moderate, contagious, self-limited conjunctivitis, chiefly in children with catarrh and not uncommonly the formation of false membrane. This micro-organism stains by Gram's method. That

[1] Archives of Ophthalmology, xxvii, p. 21.

form set up by the Week's bacillus is contagious, often epidemic and accompanied by great swelling. Corneal involvement is rare. This bacillus is frequently met with in granular suppurating conjunctivitis. Gram's method negative. The streptococci which are not stained by Gram set up a violent inflammation possibly accompanied with involvement of the deeper parts and false membranes. The Löffler bacillus which is stained by Gram may cause superficial false membranes as well as deep necrosing conjunctivitis without being able beforehand to decide as to the cause of such different behavior. The Ernst-Neisser staining method offers a means of differentiating the xerosis bacillus. The serum treatment is a powerful and active therapeutic measure to be employed in doubtful cases, but is not so potent in secondary corneal inflammation. The diplo-bacilli of Morax and Axenfeld, which is not stained by the Gram method, causes an inflammation chronic in course without decided appearances of irritation or corneal involvement. The pathogenesis of trachoma is not yet known, nor are the micro-organisms of follicular catarrh which are perhaps pseudo-gonococci. The bacilli of tuberculosis, lepra, rhinoscleroma, xerosis and actinomycosis need not be considered as causes of conjunctivitis nor can a specific form of infection be attributed to the staphylococci. The toxins may be considered as having a powerful influence upon the nutrition of the cornea.

THE BACTERIOLOGY OF TRACHOMA.

Arnold Lawson [3] prefaces some observations of his own with a short historical review of the published researches into the bacteriology of this disease. Hirschberg and Kraus in 1881 claimed to have found a club-shaped micro-organism during the acute stage, but fail to find it during the chronic. Sattler the same year isolated micrococci which were circular in shape, grouped in threes and fours, but never in chains or masses. Koch, while in Egypt in 1884, found a bacillus resembling that of mouse septicemia, which was also afterwards described by Weeks who considered it to be the cause of acute catarrhal conjunctivitis or "Pink-eye." Raehlman and Poncet in 1885 announced that they had found a small micrococcus, and the following year Michel described a small biscuit-shaped diplococcus. Koucherski in 1887 found small diplococci resembling the gonococcus of Neisser. Schmidt considers Michel's coccus as causing acute blenorrhea and describes one of his own resembling the staphylococcus pyogenes, but larger and probably identical with Sattler's. In 1888 Staderini described a diplococcus smaller than the gonococcus and soon after Petresco described a micrococcus differing from Michel's in liquifying gelatin, from Neisser's by its staining by the Gram method, and from Poncet's by being found in the follicle as well as in the discharge. In 1889 Reid declared himself unable to find any special micro-organism and in the opinion of the Berlin Congress in 1890 the disease should be considered as an infective process, but no particular micro-organism could be considered as bearing a causal relation to it. In the following year Noisewski advocated the claims of a bacterium closely allied to the micro-sporon furfur of Kaposi. In 1893 Muttermilch expressed himself as being very much in doubt as to trachoma being caused by a specific organism, and Fuchs about that time stated that he believed trachoma to be due to the transference of infective gonorrheal material that had become chronic. Uhthoff believes in the existence of some specific organism at present unknown.

[3] Royal Ophthalmic Hospital Reports, December, 1897.

REMEDIES. — SCOPOLAMIN AND ATROSIN.

Otto Meyer,[3] of Breslau, as result of his comparative experiments upon the two drugs in pathological cases expresses himself as follows: One-per-cent. solutions of atrosin acted more strongly in iritis than an atropine solution of the same strength and in two cases synechiæ yielded to it which had previously been treated with scopolomin without effect. Both drugs cause an increased tension and slight irritation, and the effect on the accommodation is about the same in both. Occasionally after use of either drug, slight toxic symptoms such as vertigo, flushing of the face, disturbance of the pulse-rate, dryness of the fauces and an uncertain action on the accommodation were noticed. They are practically allied drugs and under the same conditions in which hyoscyamin is converted into atropine active, scopolamin is converted into inactive scopolamin or atrosin.

[3] Klin. Mon. f. Augenhl., January, 1898.

PROTARGOL IN OPHTHALMOLOGY.

Darier,[4] in a paper read before the Paris Academy of Medicine, advises the substitution of protargol for silver nitrate in all cases because it causes no pain or irritation, its solution keeps well and its bactericidal action is remarkable. It is not precipitated by chlorides, alkalies, sulphur compounds or albumin and it may be combined with cocain solutions. In catarrh, blepharitis, granular conjunctivitis and dacryocystitis he consider it even the superior of argentimine. A five-per-cent. solution as a collyrium can be put into the hands of the patient for use at home. A twenty-per-cent. solution can be applied directly to the averted lid by means of a brush in treating catarrhal conjunctivitis, while in the purulent form the strength may be increased to fifty per cent. A ten or fifteen per cent. solution may be used to replace the solution of silver nitrate in the method of Crede. Its effect upon corneal processes does not seem to exceed that of the actual cautery.

Euphthalmine [5] is the hydrochloric acid salt of the mandelic acid derivative of n-methyl-vinyldiacetonalkamine. The formula is $C_{17}H_{25}NO_3$, HCl. It is a white crystalline powder readily soluble in water. It bears the same relation to Eucaine "B" that homatropine does to tropacocaine. It may be employed in two, five and ten per cent. solution. The instillation of a solution causes but slight burning sensations. As a mydriatic a five or ten per cent. solution is about equal in effect to one per cent. homatropine, but it affects the accommodation less and both disappear much more quickly. It is more powerful, but slower than cocaine and does not similarly affect the corneal epithelium. A two-per-cent. solution will give moderate mydriasis in half an hour without disturbing the accommodation which will disappear entirely in two or three hours. Thus far no unpleasant constitutional effects have been noticed.

[4] Wiener klinische Rundschau, February 6, 1898.
[5] Treutler: Klin. Monatsbl. f. Augenheilk., September, 1897. Archives of Ophthalmology, xxvii, p. 103.

SUBCONJUNCTIVAL INJECTIONS.

Donders [6] was the first to call attention to the value of subconjunctival injections and others have used

[6]

them successfully. Strong solutions should be avoided. The substances most used are cyanide of mercury, salicylic acid, iodine trichloride, sodium salicylate and chloride of sodium. The greatest influence seems to be exerted on infectious processes in the eye or cornea. The chloride and cyanide of mercury have a marked antiseptic and resolvent power as shown by their prompt action in macular choroiditis. Pflueger uses a 1–2,000 solution of trichloride of iodine in acute processes and a two-per-cent. solution of the iodide or chloride of sodium in chronic cases. He, however, makes a simultaneous paracentesis by which he claims that the action of the injection is increased. In serous iritis he advises caution, but he has seen benefit from the use of the iodine-sodium compound in acute and chronic choroiditis with turbidity of the vitreous; he considers sublimate injections only indicated in sympathetic iridocyclitis. Darier's formula is mercury cyanide 0.1, sodium chloride 10.0, water 500.0, of which one-fourth to one syringeful is injected at a distance from the cornea.

AMBLYOPIA FOLLOWING AN EXTENSIVE BURN TREATED BY IODOFORM.

Terson[7] of Paris, reports a partial atrophy of the optic nerves following an extensive burn of the thigh, abdomen and arms of a women forty-eight years old, which after the first fortnight was treated with iodoform gauze, although previous to that time moist dressings of boric acid had been used. About three weeks after the change in treatment, the patient, who up to this time had shown no head symptoms except headache nor any signs of iodoform poisoning, noticed a rapid falling off in the vision which has remained unchanged for four years. She could get about with some difficulty, but could not read very fine print. The treatment had been injections of strychnia, mercury, artificial serum, iodide of potash, milk cure and electricity, but without avail. The disks were pale, especially in the temporal region, but there were no other changes noticed in the fundus. The macular bundles were evidently involved. Vod=½, Vos=½. The fields were not contracted peripherally, there was a central scotoma, not absolute, as the colors could be made out although they had a faded appearance. The condition seemed to have been caused by a toxic neuritis similar to tobacco. Mooren in 1858 described eye symptoms following an extensive burn, as including retinal hemorrhages, neuritis, retinitis, and chorioretinitis without hemorrhage or albumin. Horner has recorded similar occurrences and Wagenmann mentions an hemorrhagic retinitis following a fall into boiling sugar. After a time the blood absorbed, but the disks became and remained white. This case had been treated with iodoform. Hirschberg had a patient, a girl of sixteen, who developed a central scotoma after treatment of hip-joint disease with iodoform and Valude in 1893 reported a case of white atrophy following a burn and iodoform treatment. Terson believes that the appearances in the lighter cases indicate merely functional changes in the macular bundle, while in the severer cases actual atrophy of the macular fibres may take place. It is known that pure iodoform intoxication acts largely upon the nerve centres and may produce a delirium resembling meningitis. The optic nerve is histologically and embryologically a part of the cerebral tissue. Simple congestion could not produce hemorrhages or neuro-retinitis. The blood of a person injured by burning is in a toxic condition by reason of diminished area of excretion from the skin and the kidneys. Although the changes in the eye are often of the nature of a true inflammation still some of the changes are very suggestive of the atrophy arising from abuse of alcohol, tobacco or some other toxic substance.

[7] Archives d'Ophthalmologie, October, 1897.

AMBLYOPIA AND AMAUROSIS IN PREGNANCY, LABOR AND CHILDBED.

Silex[8] has never seen pure amblyopia caused by pregnancy. The amaurosis of pregnancy is most commonly due to uremia following acute nephritis or diseases of pregnancy due to kidney trouble and is a toxic symptom. Albumin alone is seldom found. Amaurosis of an hysterical, epileptiform and apoplectic nature is likewise rare. Pupillary reaction is usually present. The arteries were not narrowed, which was contrary to the angio-spastic theory of eclampsia. The prognosis of pupillary paralysis is favorable. If the visual acuity does not return soon to the normal after an uremic attack with amaurosis there is apt to be a complicating retinitis which may return during a later pregnancy. The treatment is that of eclampsia and retinitis.

[8] Monatsch. f. Geburtshilfe u. Gynekologie, p. 373, 1897.

METASTATIC CARCINOMA OF THE EYEBALL.

Devereux Marshall,[9] Curator of the Museum of the Royal Ophthalmic Hospital, has recently examined two cases of carcinoma of the eyeball due to metastasis and has collected from other sources twenty-two other cases, and submits the following as resulting from his analysis: Eighteen out of twenty-three were females and most of the cases occurred in middle-aged persons, the extreme age limits being twenty-eight and fifty-seven. The tension was normal in eleven, increased in seven, diminished in four and not recorded in eight. In this respect there is a difference between cases of this and sarcoma of the choroid in which the tension is usually increased. The author refers to a recent publication in which is mentioned the fact that the tension in intraocular tumors without involvement of the ciliary body is increased in 67 per cent. and normal in 30 per cent. of the cases. This is due to the nature of the growth, which is flat and thin and does not push the ciliary body forward. In a very large proportion of the cases, seventeen, the primary growth was located in the breast. The duration of life after the appearance of the first signs of the growth in the eye varied between one month and two years, but in most cases it did not exceed a few months. It has been established that metastasis in the eye occurs through the agency of the vascular system which consequently is much slower than elsewhere by the more useful course of the lymphatic channels. This would lead one to look for a general dissemination of the disease through the internal organs of the body before anything became especially noticeable as regards the eye. It is therefore hopeless to imagine the internal organs unaffected if the eye has become involved, so therefore the treatment becomes only palliative, with enucleation to fall back upon in case of pain that cannot be relieved in any other way.

[9] The Royal London Ophthalmic Hospital Reports, December, 1897.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE FRONTAL SINUS.

Fehleisen [10] insists on radical measures in operating upon the frontal sinus and describes a technique which in the main agrees with Nebinger and Kuhnt. As regards the point of chiselling, most operators recommend a point corresponding to the inner end of the eyebrow which is at the intersection of two lines, one of which connects the two incisuræ supra-orbitales, the other being drawn perpendicular to the first from the crista lacrymalis anterior. The point lies at the margo supra-orbitalis perpendicularly over the ligamentum palpebræ. Nebinger advises to begin chiselling at the os nasæ. The frontal bone consists of an external and an internal table with spongy bone between and the anterior sinus wall consists solely of external table, so if one chisels carefully the cranial cavity cannot be entered as the spongy bone will give sufficient warning. The mucous membrane lining the sinus wall will appear as a dark red or dirty yellow or black cyst if it has not sloughed. Pulsation of the sinus does not denote absence of the posterior wall. After removing sufficiently the anterior and possibly a portion of the lower wall the edges are so bevelled as to admit good coaptation of the skin, avoiding a pouch formation. The mucous membrane, even that of the upper part of the ductus naso lacrymalis, is thoroughly removed. If this is closed it is harmful to open it, for if the cavity is obliterated as described the ductus naso frontalis not only becomes superfluous, but its artificial opening may do harm by allowing inflammatory products from the nose to come in contact with the wound. The after-treatment is to be in accordance with modern surgical methods.

GLANDERS.[11]

According to the author this is the first description of glanders primarily affecting the lachrymal passages and the conjunctiva and strictly limited to them. The patient, a boy aged twelve years, had a lachrymal fistula of the right side which the father ascribed to a blow received twelve days before. Up to that time he had never had any trouble with either his eyes or tear passages. The fistula was extensive with thickened edges, everted and spread over with fine granulations and grayish-yellow pus. No history of syphilis or tuberculosis, and with the exception of measles and scarlatina he had always enjoyed excellent health until the appearance of the fistula. At present, although well grown, he is pale and thin and he possesses old cicatrices on the neck. The submaxillary gland is as large as a pigeon's egg and was noticed before the appearance of the fistula. The right pre-auricular is also enlarged but neither are painful. Thoracic organs are normal. Aside from the fistula the eyeball and lids are normal and the canal is permeable to the passage of a probe. Although he improved somewhat under treatment, in three months the condition was found to have extended to the lower cul-de-sac which was filled with a grayish-yellow mass resembling the fistula. Excision and cauterization were then done. The bacteriological work which had been carried on in the meantime suggested glanders although the most careful physical examination failed to disclose signs of chronic glanders or farcy. The submaxillary gland healed readily after being incised and the pre-auricular did not change in appearances. The lid condition improved for a time then it invaded the upper lid and conjunctiva of the bulb. A guinea-pig inoculated with pus from the fistula died in thirteen days, having miliary granulations in the viscera and a degenerating focus at the point of inoculation. A guinea-pig inoculated with pulp from the spleen of the first, died in twelve days, with an abscess at the point of inoculation, a hypertrophy of the inguinal glands, swelling of the testicles and miliary granulations of the internal organs. Examination of the spleen showed tubercle bacilli to be absent. There was present a slender bacillus not stained by Gram and forming on potato characteristic colonies. Notwithstanding careful inquiry it was impossible to determine the source of the infection.

(To be continued.)

[10] Medical Record, August 7, 1897.
[11] Gourfein: Revue médicale de la Suisse romande, xvii, December, 1897.

Reports of Societies.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

FIFTEENTH ANNUAL MEETING HELD AT MAPLEWOOD IN THE WHITE MOUNTAINS, NEW HAMPSHIRE, AUGUST 31 AND SEPTEMBER 1, 1898.

SKETCHES of the lives of the late Drs. W. D. Bratton, U. S. Marine-Hospital Service, and J. Carey Thomas were given by DR. OTIS.

A sketch of the life of Dr. Harrison Allen was given by DR. R. G. CURTIN.

A sketch of the life of Dr. William Pepper was given by DR. J. H. MUSSER.

The President, DR. E. O. OTIS, of Boston, gave the opening address on

AUENBRUGGER AND LÆNNEC, THE DISCOVERERS OF AUSCULTATION AND PERCUSSION.[1]

DR. F. I. KNIGHT, of Boston, read a paper on

COMMON ERRORS OF GENERAL PRACTIONERS IN DEALING WITH CASES OF PULMONARY TUBERCULOSIS.[2]

DR. VINCENT Y. BOWDITCH, of Boston, read a paper entitled

THE RESULT OF RECENT EXPERIENCE WITH PHTHISICAL PATIENTS.[3]

DR. DIDAMA, of Syracuse, in discussing the papers of Drs. Knight and Bowditch, deprecated the sending away of advanced cases of tuberculosis and urged early diagnosis and the necessity of very early informing the patient of his danger and his needs. Dr. Didama was not averse to the use of syrups in the treatment of tuberculosis.

DR. R. G. CURTIN, of Philadelphia, favored the simplest medication.

DR. MUSSER, of Philadelphia, said that on account of the general knowledge of the value of climate, patients and families take lives into their own hands and in spite of advice go to distant resorts. "No doubt, however, a great many of us have erred from time to time, because it seems to me there is nothing more difficult in medicine than to decide in certain

[1] See Nos. 12, 13, pages 281 and 305 of the Journal.
[2] See page 485 of the Journal.
[3] See page 486 of the Journal.

classes of cases what cases shall be sent away and what cases shall be retained. I have no doubt that Dr. Hart can give us incidents of a number of cases dropped into Colorado, sent there by Eastern physicians. Nevertheless there are some cases which we must send away for reasons that present all the contra-indications at the time for such steps. I recall one instance, the case of a young man who was taken ill with localised tuberculosis with apparent general infection; certainly there was excessive consolidation at the apex, and the man had high fever, rapid emaciation, sweats, etc. I advised, notwithstanding his weakness, that he attempt to get to the Adirondacks. He took my advice although it was given with great misgivings. He put himself under the care of Dr. Trudeau, who told his mother he did not believe he would live ten days or two weeks in that region. Nevertheless a residence of nine months under the care of Dr. Trudeau resulted in a complete cure, or at least, an arrest of all manifestations of the disease. It occurred three years ago and he is perfectly well and strong and is attending to his duties in Philadelphia at the present time. This was a case which to all intents and purposes should never have been thought of being sent away, and yet because of the conditions he would have been surrounded with at the time, I thought it advisable to take the step and fortunately for us all the result justified the means."

DR. HART, of Colorado Springs, in discussing papers of Drs. Knight and Bowditch, said: I do not know that I can add anything to what has been said. Drs. Knight and Bowditch have said just exactly what I have wanted to hear and I feel well repaid for coming to the meeting. We have a great many patients sent to Colorado who undoubtedly would be better if left at home. They arrive there after a long journey, with high temperature, sweating and so on, with every indication of advanced trouble and in a number of instances I have found cavities, and it is a very difficult matter for the physician at the health resort to manage those cases. They do not understand why they should be sent back home because of this hopeless condition, which it invariably is.

There is another class of cases which are sent out and advised to rough it, ride horseback and have a good time generally and keep away from doctors. It is not long before they get into the doctors' hands, and they have taken a course they should not take and we have a great deal of trouble in the management of these cases. I think with Dr. Knight that the patient should be advised before sending away, but I do not think the advice should be to keep himself under the care of his family physician at home after going away.

DR. T. D. COLEMAN, of Augusta, Ga., in discussing the papers of Drs. Knight and Bowditch, said: I have had in my own practice during the last year only two patients illustrating points brought out in both of these papers. One of the patients came to me from a neighboring city, who was convalescing from what was said to be an attack of typhoid fever. If the physical signs in the chest had not been sufficient to diagnose the case that of tuberculosis the examination of the sputum would have been so, and there was little excuse for the diagnosis not being made. The patient was so far advanced that in the course of about six weeks he died. The early appreciation of these troubles I think is the key to the cure of them, and I feel that where a proper physical examination is made many of the errors will be avoided. It seems to me that the most valuable early training that I had was in making a thorough physical examination of cases that came to me. I have made this a rule of my life and in that way I have avoided many errors.

DR. BEVERLEY ROBINSON, of New York, said: I share, of course, in the judgments that have been pronounced by Drs. Knight and Bowditch. I consider Dr. Bowditch's paper a valuable one indeed, because I have many times said what he has so ably stated here to-day. I think too often a mistake has been made and deficient attention paid by physicians and the public as to how much we should consider the feelings of the patients and the distress caused to the families, and after all it seems to me an advisable thing for the practitioner to give consolation and happiness rather than pursue too far independent measures based perhaps upon the most accurate scientific deductions of the day.

Now with regard to the physical examination, I am free to admit that, although I have the greatest respect for all that has been told us to-day, the best percussion and auscultation permit us to find decided errors and mistakes made and some of us notice when we follow the post-mortem room that the different examinations made prior to death are not always upheld by the post-mortems.

Once more I will say I have seen people where they have been sent away, homes broken up, and they did not turn out to be phthisical patients. Therefore, I have not been willing immediately to endorse absolutely what Dr. Knight says.

Now another point which is of some little value, in regard to giving cod-liver oil in large doses. You have the patients with tongues coated, digestion disturbed, and it is very hard to give medicines or food under these circumstances. But we cannot throw up the sponge with regard to medicines or food. I must make a mental appeal and at least hope and trust that we may have something that will yet do for these poor people. I would refer in this particular line of thought to the fact that I have seen a certain number of hospital patients (I won't say private patients, for various reasons I have not been willing to pursue that method with those); I have fed a certain number of phthisical patients in hospitals with the stomach pump when I felt that they could not take food or medicine otherwise, and I have tried to hope (I believe I am stating it just as I feel it to be) I have produced a certain amount of temporary beneficial effect.

With regard to the question of climate I am particularly opposed (begging the pardon of the gentleman from Colorado) to sending a patient far away if I can find conditions near home which will probably suit those patients about as well. I have a very doubtful mind as to the merits, in regard to the curative influence, of any particular climate as opposed to any other particular climate. I think you have to estimate all the conditions involved in the selection of a particular place, and I agree with Dr. Knight that it is important to have the good physician there. I always want to know a good deal about the drainage of the house, and the food, which after all make a sum quite as important as the question of climate. And I do not believe it is a good thing to send people so far away from home. I am speaking of the secondary stages.

I think that paper of Dr. Bowditch is a very valu-

able one and I cannot express myself too strongly as to how far its influence may reach.

DR. KNIGHT, in closing the discussion of his paper, said that he would like to say a word in regard to the use of syrups. In the treatment of these patients the use of syrups and sugar should be avoided, for they get enough sugar in their ordinary diet and an excess of it seriously deranges digestion. He was not now advocating any special climate, but, on the other hand, was simply trying to make the physician appreciate the possibility of cure if he does all that is possible for his patient by an early diagnosis. This is usually possible with the aid of sputum examination and, in rare cases, the tuberculin test.

DR. THEOBALD SMITH, of Boston, Mass., presented a paper entitled

VARIATIONS IN PATHOGENIC ACTIVITY AMONG TUBERCLE BACILLI.

In the production of states of disease due to infection two main modifying factors should be recognized, the pathogenic activity or virulence of the infecting organism and the relative resistance of the infected individual.

The formation of races of bacteria endowed with different degrees or qualities of pathogenic power may be caused by prolonged parasitism upon different species, as illustrated by the tubercle bacilli of birds, cattle and man; to invasion of different types of individuals of the same race; and to continued vegetation in different organs of the body. Parasitism upon different species must obviously produce races of the widest differences. Such races are now recognizable among tubercle bacilli. Differences in bacilli current among individuals of the same species may be so slight as to be not recognizable with our crude tests. Virulence is thus a function of resistance and the reverse is equally true. Both factors may slowly change with time, but for the short span of life of the individual they are practically fixed.

Variations in the pathogenic power as well as in minor physiological characters of bacteria have been encountered in nearly all important species carefully studied. Variations in virulence may also be artificially produced by passing bacteria through a long series of animals; variations in resistance, by processes of vaccination or immunization. The inoculation disease in such treated animals is usually modified in character.

Tubercle bacilli are no exception to the rule. Gradual changes may be noticed during artificial cultivation which express themselves by reduced virulence. Variations in virulence occurring spontaneously have been noted by Koch, Arloing and the writer. The latter has also found uniform pronounced differences in the pathogenic power of bovine and human bacilli sufficient to entitle each to the position of a race. The practical significance of minor variations occurring among human tubercle bacilli cannot at present be satisfactorily estimated, but needs further study.

DR. E. FLETCHER INGALS, of Chicago, presented a paper on the value of

SYSTEMATIC PHYSICAL TRAINING IN THE PREVENTION AND CURE OF PULMONARY TUBERCULOSIS.

Dr. Ingals referred to the well-known fact that the long, narrow, flat-chested individual is the one who is most liable to the development of tuberculosis and in patients in whom this form of chest is present the chances for recovery are reduced to a minimum. Thus systematic physical training would be likely to prevent the disease and possibly cure it in the early stage by preventing or correcting collapse of the air cells. It is probable that a pre-tubercular, or early tubercular, anemia diminishes the nutrition of the parts and consequently their resisting power.

Just as tuberculosis attacking the skin and bones is so limited by the natural processes that at its worst it extends often over many years, so similar processes should be encouraged in the lungs. The first measure to be adopted is deep breathing and the beneficial effects of high altitudes are due to the increased distention of the air vessels in the efforts to more completely fill the lungs. Patients should expand the lungs thoroughly several times a day and the physician should inspect the mode of breathing. The patient should be directed to draw in the abdominal walls and take a long, deep breath, while the shoulders are carried gradually backward and the ribs and sternum elevated as far as possible; he should hold this breath for a few seconds and then blow it out slowly and forcibly through a small opening between the lips.

Dr. Ingals stated that systematic physical training can cause a considerable change in the form of the long, flat, narrow chest, and that such training is beneficial after the disease has actually developed. The records of Amherst College for the last twenty years show that in 2,106 students who had compulsory physical training only half an hour four times a week there was a gain of 1.21 inches in the chest measurement during the college course. At Bowdoin College the results surpassed this. The examination of statistics from various colleges has shown that non-professional college athletes, in nearly all cases, outlive their expectancy as estimated by the most careful life insurance companies. Although a considerable number of these amateurs ultimately die of pulmonary tuberculosis the percentage does not appear to be as large as among men who have had no physical training.

Dr. John E. Morgan, in a book entitled "University Oars," published in 1873, concludes that athletics tend to prevent consumption, but that people of delicate constitution should avoid overtraining as overexertion may possibly predispose to consumption.

Dr. Ingals favors the use of Indian clubs, the rapid use of small dumb-bells, the horizontal bar, the trapeze and boxing, as well as the ordinary out-of-door exercises. The most important is the frequent practice of deep inspiration whereby the lungs are thoroughly filled and forcible expiration which inflates the air cells at the apices of the lungs. In order to insure the patient's carrying out the directions Dr. Ingals orders a simple medicated inhaler to be carried in the pocket and used at stated intervals throughout the day, for many persons will take some medicine regularly who would soon discontinue systematic inhalations of non-medicated air.

Dr. Ingals uses a simple hard-rubber tube about four inches long and half an inch in diameter filled throughout its middle two-fourths with corrugated blotting paper and having corks in each end so that it may be closed to carry in the pocket. The medicament is dropped on the blotting paper and the patient is directed to take long deep inhalations through the inhaler every two hours during the day. After the instrument is freshly charged the patient inhales but twice; two hours later four times; two hours after-

ward six and at the end of the next two hours eight. The instrument is then to be recharged.

The remedies employed by Dr. Ingals consist mainly of thymol, menthol, tincture of iodine and formalin in solution in alcohol. Chloroform may be added to any of these to relieve cough.

Thymol is used in the strength of one to two grains to the ounce; menthol, thirty to sixty grains to the ounce; formalin, half a drachm to one drachm to the ounce. They are of signal value in laryngitis and tracheitis, but neither these nor other inhalants have any direct effect on tubercle bacilli. They mitigate, however, the catarrhal inflammation that attends the tubercular process.

DR. IRWIN H. HANCE, of Lakewood, presented a short paper on

THE RESULT OF A SINGLE TEST OF THE VIRULENCY OF SPUTUM KEPT MANY MONTHS.

In February, 1896, he inoculated six guinea-pigs with sputum which was secured from an old chronic case of pulmonary tuberculosis with large cavities. Eight weeks later all the animals being alive were killed; general tuberculosis of the glands and of the abdominal and thoracic organs were found in each pig.

Sputum which had been kept seventeen months in stoppered bottles in a box in a closet was thoroughly mixed in its own sediment and one and five-tenths cubic centimetres was inoculated into the peritoneum of one and under the skin of a second guinea-pig. The former died in forty-eight hours of some septic poison; the latter lived thirty days, when he was killed. At the autopsy there was no glandular enlargement and no evidence of tuberculosis. On the same day two cubic centimetres of the sediment was mixed with two cubic centimetres of sterile water and centrifuged for ten minutes, thinking thereby to get the bodies of the tubercle bacilli without the toxin apparently present in the fluid. To this deposit in the tube, after decanting the supernatant fluid, two cubic centimetres of sterile water was again added and equal parts of this were injected into the groins of two guinea-pigs. Twenty-eight days later both pigs were killed and the autopsy gave negative results. Neither of the pigs after the second experiment was at all sick after the inoculation. The microscopic examination of the centrifuged sediment did not show any clearly outlined bodies of the tubercle bacilli, but fragmentary masses which retained the coloring matter were pronounced to be tubercle bacilli by two other examiners besides the writer.

As the bacilli in this case were no longer viable Dr. Hance asks: Does sputum which remains in a liquid state for a long time develop toxins which are inimical to the life of the tubercle bacilli? Would the result have been different had the sputum been more virulent in its character, and taken from a case of acute active tuberculosis? If sputum dries more rapidly does it retain its virulency longer?

DR. JAMES M. ANDERS, of Philadelphia, presented a paper on

SANATORIA AND SPECIAL HOSPITALS FOR THE POOR CONSUMPTIVE AND PERSONS WITH SLIGHT MEANS.

After referring to the superiority of institution treatment of pulmonary tuberculosis and its evolution the author referred to the provision for consumptives in English hospitals. Statistics and a chart showing the deaths from pulmonary tuberculosis for the last twenty-five years in Philadelphia were presented. The deaths from consumption in Philadelphia have gradually fallen from 3.42 per thousand of population in 1870 to 1.96 per thousand in 1897.

With reference to hospitals for consumptives, Dr. Anders firmly believes that when located in densely populated centres they do not offer advantages in any way comparable to those of modern sanatoria situated in a suburban locality, a purer atmosphere, etc. The object of the paper was to show the paramount value of sanatoria and the urgent necessity for the construction of an adequate number of these institutions for the treatment of consumption in the earlier stages in persons having small means, and the needy poor; although the best means of caring for the advanced cases will be found to be special hospitals.

Various sanatoria were described and the accommodations for consumptives in New York and Philadelphia were enumerated. Dr. Anders believes in the free dissemination of information as to the nature and management of the disease and believes that it should be reported, with other diseases, to health authorities. Pulmonary tuberculosis is far more common as well as more inauspicious among the lower than among the higher classes. The almost absolute lack of proper facilities for treatment maintains the great death-rate. Special hospitals are far superior to separate wards in general hospitals for the treatment of this class of patients.

Dr. Anders deprecates the admission of tuberculous patients into the ordinary wards of general hospitals on account of the danger of transmission. He showed that sanatoria lessen the mortality-rate of phthisis in communities in which they are situated.

DR. H. P. LOOMIS, of New York, presented a paper on

THE PRE-TUBERCULAR STAGE OF PHTHISIS; OR THE CONDITION WHICH ANTEDATES TUBERCULAR DEVELOPMENT AND SOME AIDS TO ITS DIAGNOSIS.

Dr. Loomis likened the pre-tubercular stage of phthisis to the stage of transient albuminuria found in a case developing nephritis. While a majority of tuberculous patients apparently start with local manifestations, a large number have exhibited for a longer or shorter time well-marked evidences of an antecedent morbid condition of the general system. Dr. Loomis first considered the subject of the relation of the weight of an individual expressed in pounds to his height expressed in feet. This ratio constitutes the "corpulence" a term introduced by French writers, and for men the standard is 26; while for women it is 23. This factor should, however, be taken in connection with the "vital capacity" to be of value. The latter is obtained by taking the thoracic perimeter (the mean of expiration and inspiration) and dividing by the height. For each inch of height of man there should be three inches of vital capacity as measured by the spirometer; and in the case of women 2.6. The thoracic perimeter should never be less than half the height.

The third element in making a diagnosis is the constitutional condition. Dr. Loomis believes that chloroanemia is often one of the most pronounced symptoms of the pre-tubercular stage of phthisis. In tubercular

chloro-anemia the hemoglobin never falls so low as in true chlorosis. Digestive troubles precede the deposition of tubercles in many cases. Indigestion may be a forerunner of phthisis.

The character of the pulse is a fourth element. It is found that in the very beginning of phthisis a change in position of the patient has very little influence on its beat. Dr. Loomis placed the ordinary variation in healthy men, on change of position, at fifteen beats per minute. The relative feebleness of arterial pressure as noted by Wells may be estimated by suitable instruments; it probably puts the organism in a state of microbic receptivity.

DR. BEVERLEY ROBINSON, of New York, read a paper entitled

CLINICAL NOTES ON ASTHMA AND ITS TREATMENT.

The author stated that the cases of nervous asthma so called, or asthma merely functional and without fixed causation, had been infrequently met with in his experience. He referred to the fact that in the majority of cases there is probably a certain sensitiveness of the central or peripheral nervous system which accounts in a measure for the recurrence of attacks, but that despite the existing nervous irritability, the asthmatic attack would rarely occur were there not some other discoverable but as yet unknown cause. Malarial toxemia is frequently present but ignored. Malaria may be present causing slight enlargement of the spleen and liver, moderate secondary anemia, engorgement of the nasal, laryngeal or tracheal mucous membrane, or other parts of the upper or lower air tract, and yet be lost sight of, or its presence questioned or doubted. Microscopic examination of the blood in these obscure cases does not always give a satisfactory clue. If there is reason to suspect malaria in a case of asthma Dr. Robinson gives Fowler's solution until the physiological effect is produced. If constipated and the liver is inactive he advises Warburg's extract in doses of five grains three or four times daily. For the anemia, a pill containing one grain of reduced iron, two grains of muriate of quinine and one-sixtieth or one-thirtieth of a grain of arsenious acid. In an attack, belladonna, chloral or nitro-glycerin, and as a last resort chloroform inhalations or a hypodermic of morphine and atropine. Dr. Robinson believes in gout as an underlying cause in many cases. He related an interesting case in point, in which the cause was renal inadequacy due to gout, and in which the patient was restored to health by the use of three or four milligrammes daily of colchicine. Reflex causes are also to be removed.

For gastric catarrh, lavage and the use of Vichy or Vals water and an occasional mercurial purge are advised. Bronchitic and emphysematous types were referred to. Small doses of ipecac, tartar emetic, grindelia robusta, chloride of ammonium and iodide of potassium were used where the secretion is scant; when profuse, belladonna or atropine may be added to these, or pills of camphor and quinine may be given. For cardiac distention and accompanying symptoms nitro-glycerin and nitrites may be used, or soluble salts of caffein, such as the salicylate, or occasional bleeding will give relief. Nitrite of amyl was condemned as dangerous. The time to give morphine injection was indicated and should be avoided if the pupils are contracted. Climatic treatment was also indicated.

DR. F. I. KNIGHT, in opening the discussion of Dr. Beverley Robinson's paper, said: I think Dr. Robinson has done a good service now and heretofore in calling attention to the constitutional element in cases of asthma. The gouty or the malarial condition which is often the excitant of the attack is undoubtedly often neglected. It seems to me that asthma is a very complex thing. Asthma is due, first, to an underlying neurosis; and second, to some lesion in the bronchial tract, I think almost invariably, if not always; and thirdly, to some excitant. In treating the paroxysm if we can relieve or modify any one of those factors we can stop the paroxysm. I had a patient who could always relieve an attack of asthma by gambling for high stakes. It is impossible in certain cases to change or alter the organic lesion; but we can remove the excitant or remove the patient from the excitant. Englishmen who are subject to asthma will relieve it at once by going from the country down to the city. I know a patient who always has asthma in one hotel in Boston and never has it in another, and the hotels are within a block of each other, and no one has been able to tell the cause. So we have these various factors on which we may work in the interval. The gouty or malarial constitutional condition which I consider the excitant may be so modified that the patients' attacks may be relieved; so it is with those cases where an organic lesion is in the upper part of the respiratory tract and acts by reflex on the air tubes below. Often when polypi are removed there is only temporary relief, and then some other irritants come in by reflex or otherwise. I might mention here the theory of Berkart, that the lesion of 90 per cent. is in the lungs, and comes from measles or whooping-cough, or other inflammatory affections in childhood. Dr. Hyde Salter puts the proportion at 80 per cent. I think that a very much exaggerated statement, but since reading it I have traced a large number of cases back to inflammatory conditions in childhood.

In regard to the bronchial cases and their relief, I should perhaps urge more strongly than Dr. Robinson the value of the iodide of potassium. No one remedy has served me so well as this.

In the emphysematous cases there is one thing which above all should be insisted upon, and that is rest. The patient who has been miserable with repeated attacks of asthma at night for weeks and months may be perhaps relieved for considerable time by restricting his movements and admininistering strychnia freely.

It is an interesting subject but certainly a very perplexing one and worthy of a great deal more study than is usually given it; and if men will take the pains to investigate individual cases and not consider them simply cases of asthma and treat the name, but will try to get at the conditions which underlie them, they will have much better results in their attempts at treatment.

DR. JOHNSON, of Chicago, in discussing Dr. Robinson's paper, said: I wish to add my testimony to what Dr. Robinson has said about the condition of constitutional infection, and the necessity of determining primary cause. But in almost every case of asthma, whatever the primary cause may be, we have to deal with bronchitis and spasm, and in order to obtain prompt satisfactory results, no matter whether the primary poison is eliminated or not, we must direct the treatment temporarily to the immediate disturbance. I concur most fully with what Dr. Knight has said, that the most important remedy is iodide of potash. It

should be given in moderate doses continued for weeks or months if need be. The relief of the paroxysms is the important thing in the patient's extremity. In mild attacks this may be accomplished by the administration of belladonna and chloroform internally. Chloroform given internally acts more slowly than by inhalation, but the action is more prolonged and it is safer. In severe paroxysms the nitrites are often very useful. I prefer nitro-glycerin. Its action is very prompt, almost as prompt as nitrite of amyl. The vasomotor effect of one-hundredth of a grain can often be felt within two minutes. The dose may be repeated every ten to sixty minutes as required. Nitrite of amyl is much more dangerous in the hands of the patient than nitro-glycerin. Morphine is safer and more useful than the nitrites in asthma with greatly embarassed right ventricle.

Dr. J. B. Walker, of Philadelphia, in discussing Dr. Robinson's paper, said: I would like to refer to one climatic factor that is within every one's reach everywhere. This is sunlight. A patient living on one side of a street may be exempt from asthma, while on the other he may be affected. This may be due to the fact that on one side he lives in a shady room, and on the other side in a sunny one. This is a factor of no small moment in not only the asthmatic, but in all subacute and chronic bronchial disorders.

Dr. W. D. Robinson, of Philadelphia, advised the use of iodide of potassium in junket.

The President, Dr. Otis, of Boston, instanced a case in which the removal of the patient from one room to another, and a change of pillows made of feathers for those of other material gave relief.

Dr. Glentworth R. Butler, of Brooklyn, read

A NOTE ON THE POSITION OF THE LOWER BORDER OF THE HEART AND THE TOPOGRAPHICAL ANATOMY OF THE ORGAN.

Dr. Butler said that although the lower border of the heart is usually stated to lie above the junction of the sternum and xiphoid appendix on a level with the sixth chondro-sternal articulation, yet in the living subject it lies at a lower point in 70 per cent. of well-formed normal chests. The point is at least one half an inch below the sterno-xiphoid junction. Sibson's investigations were referred to. There is a post-mortem shrinking of the heart so as to raise its lower border. The arguments of Sibson and the revelations of the x-ray combine to place the lower border of the heart at about the junction of the upper and middle thirds of the xiphoid appendix.

Dr. Butler describes the heart as an irregular, four-sided pyramid. The base of this pyramid rests on the diaphragm; the apex is truncated, thus offering a place for the upspringing great vessels. It therefore possesses five surfaces, anterior posterior, right, left and inferior (the base), with well-defined borders separating them. The anterior surface is triangular in shape, slightly curved and lies parallel with the posterior surface of the sternum. Dr. Butler exhibited a diagram to show these relations. In closing he referred to the models of His and the description of Kelller; also the demonstration of Ebstein's triangle, the disappearance of which is good proof of pericardial effusion.

Dr. Butler said it was a moot question as to whether any method of percussion will enable the full extent of the right border of the heart to be mapped out, as in the normal heart the cardiac dulness rarely extends to the right of the sternum, whereas we know from incontrovertible anatomical data that the right auricle passes one inch to the right of the sternal edge. There is a greater thickness of lung between the right border of the heart and the chest wall than on the left side which may account for the greater uncertainty in delineating the dexter border. Auscultatory percussion is far superior to ordinary percussion. Sansom's pleximetric method is very reliable.

Dr. Didama asked if the aspirating needle would not be liable to puncture the heart in operating for pericardial effusion if the position of the lower border of the heart were not fully recognized.

Dr. Coleman asked if the position of the heart changes when the position of the body changes.

Dr. Butler said that he was obliged to make a conjecture as to the position of the diaphragm during quiet respiration, placing it at an intermediate distance between the two lines marking the position at full inspiration and expiration, but as the upper and lower limits of the excursion of the lower border of the heart both lay below the lower end of the sternum any possible error in this respect did not affect the statement as to the position of the lower cardiac border.

(To be continued.)

Recent Literature.

Die Chirurgischen Krankheiten und die Verletzungen des Pankreas mit 18 *Abbildungen.* Dr. W. Korte, Deutsche Chirurgie Lieferung 45. Stuttgart: Verlag von Ferdinand Enke. 1898.

This is an exhaustive well-written monograph of 234 pages, and is a valuable contribution to the present limited knowledge of the affections of the pancreas, an organ whose anatomical position makes the acquisition of information relating to its physiological processes or clinical changes difficult to obtain. The first pages are devoted to a very extensive bibliography of the subjects treated in the different chapters of the book. Next is the history of the slow accumulation of what is to-day known of the anatomy, physiology, pathology and surgery of this obscure gland. The anatomy is interesting, especially that of the ducts of Wirsung and Lautonin. Chapter IV discusses the general symptomatology and etiology of pancreatic diseases. To it is appended a classified table of all the pancreatic diseases found at 3,018 autopsies. The remainder of the book deals with especial affections of the organ, namely, cysts and tumors (cancer, sarcoma, adenoma, lymphoma, tubercular and syphilitic), inflammation, hemorrhage, abscess, necrosis, disseminated fat necrosis, calculi, injuries (ruptures, contusion, wounds), malpositions and finally diabetes as connected with pancreatic lesions.

The book is quite a satisfactory one and especially interesting to any one desirous of obtaining specific information relating to the pancreas. It is valuable not alone for the full detailed descriptions of recognized pancreatic conditions; but also on account of the exhaustive bibliography which its author has collected. One feels after an inspection of the book that the field has been thoroughly covered, and that it fully represents what is to-day known about the pancreas.

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MODERN VIEWS ON CERTAIN SYMPTOMS AND CAUSES OF BRIGHT'S DISEASE.

THE Carpenter Lecture of the New York Academy of Medicine, delivered October 20th, ult., by Dr. C. A. Herter, is noteworthy as containing an explanation, based on modern and recent researches, of certain symptoms of renal disease which have always perplexed pathologists, and as summing up etiological data.

After reviewing the various hypotheses relating to renal dropsy, Dr. Herter believes that the view which attributes this complication to alterations in the walls of the smallest blood-vessels is the most probable. Recent studies in the pathological histology of the kidney give support to the contention that renal dropsy is closely connected with vascular lesions. A very large proportion of cases of acute and subacute renal dropsy are associated with well-defined glomerular lesions in the kidney, alterations of the vascular tufts being prominent and preponderating. There is either proliferation of the endothelial cells of these tufts (the more common form) or proliferation of the capsular epithelium and accumulation of cells in the capsular spaces. These lesions are probably dependent on micro-organisms, or their toxins which reach the kidney by the blood stream. It is in conditions of infections (such as scarlet fever, malignant endocarditis, severe malaria) that glomerulitis is most often encountered, and the structures which are damaged are largely the small blood-vessels. Such structural alterations must also exist in the vessels of the skin. The theory, then, is that certain poisons in the blood produce both glomerular lesions and changes in the cutaneous vessels which permit the transudation of serous fluid, which in the one case as well as in the other is charged with albumin. That the albumin in the urine in Bright's disease comes, in part at least, from the glomeruli has been experimentally demonstrated. In such cases as are not accompanied with edema, we may suppose that the toxic agents which have damaged the renal tufts in the manner indicated have not yet had time so to damage the vessels of the skin as to permit transudation, or, at least, are not sufficiently concentrated to cause transudation.

This explanation is particularly applicable to acute and subacute renal dropsy. In chronic nephritis there is often an increase in the water of the blood, production of edema. There is, moreover, often high and the alteration, not merely of the vessel walls, but of the connective tissues about the vessels favors the venous and low arterial pressure due to failing heart. Dr. Herter's observations show that dropsy and the concomitant glomerular lesions are twice as frequent among patients with large kidneys (weighing above six ounces each) as among patients with contracted kidneys (weighing under four ounces each).

With regard to the presence of albumin in the urine, Herter, with recent authors, as Lecorché and Talamon, rejects the notion of "functional" albuminurias, and believes that glomerular or epithelial lesions are present in all instances of true albuminuria. He thinks that the view of the older generation of physicians that albuminous urine from the kidneys points to nephritis is nearer the truth, than that albuminuria is often physiological. Yet, while albuminuria means glomerulitis, the mistake of the older school is in the failure to recognize that patients frequently live in good health for ten to twenty years with slight nephritis. Dr. Herter believes it not to have been demonstrated that the degree of albuminuria is controllable by medication, nor does the character of the food — whether nitrogenous or non-nitrogenous — exert any appreciable influence on the quantity of albumin that escapes from the kidney. When the loss of albumin is large, an unusually rich nitrogenous diet is required to protect the organism from the loss of its nitrogen. Moreover, it is now known that the erect posture favors the escape of albumin, while the horizontal posture hinders it. The bearing of this fact on the treatment of chronic nephritis is obvious.

To ascertain the period of delay in the excretion of urea in pathological states of the kidney, Herter recommends the methylene-blue test. When this dye is injected into the muscle of a patient suffering from nephritis, the blue color appears quite promptly in the urine, but much longer time is generally taken for its disappearance than in persons with normal kidneys; instead of disappearing in thirty-six to forty-eight hours, the coloration often persists for a week, or even longer. In opposition to the conclusions of Bard and Bonnet, Herter has obtained no evidence that the kidneys in parenchymatous are more permeable than in interstitial nephritis, and the ability to excrete the blue is found to vary at different times. A distinct delay in excretion is evidence of the inability of the kidney to do its normal work on time, owing to structural alterations; and such a delay, when prolonged four days or more, is associated with an increase of the urea in the blood. The prompt disappearance of the dye (within thirty-six hours) may be taken as an

indication that the kidneys are normally ridding the blood of urea and other waste constituents, even though the urine contains albumin and casts. One grain of the methylene-blue in ten minims of water is the amount which may be injected.

It is in the department of etiology that the greatest progress has been made during the past twenty years. And, as Herter remarks, now, instead of looking at nephritis as a primary disease of the kidneys, due to exposure to cold, or idiopathic in nature, we have come to see in the different anatomical types the evidence of different reactions on the part of the renal, vascular, epithelial and connective-tissue cells toward toxic substances or micro-organisms brought by the blood stream. A large percentage of renal diseases is due to the direct action of bacteria or their toxins. While the presence of bacteria in the urine often means only that the microbes of infection of some neighboring or distant organ (as of the intestine in enteritis, the heart in infectious endocarditis) are passing out of the system through the natural channel of excretion (and in such instances the bacteria may not materially harm the renal parenchymatous elements), in other cases, the passage of bacteria through the kidney is a symptom of injury to renal structures. Thus, a tubercle bacillus bacteriuria is no rare expression of renal tuberculosis which has arisen from a deposit in the kidney of tubercle bacilli from the blood stream. In rare instances, a typhoid bacillus bacteriuria is responsible for a suppurative pyelitis. Again, pyogenic streptococci and staphylococci have been found in the urine in various forms of acute nephritis in the course of erysipelas, malignant endocarditis, osteomyelitis, scarlet fever, etc., and these bacteria may be regarded as causative of the renal lesions. In other cases, it is probable that the glomerular and other lesions are due to toxins rather than to the bacteria themselves, thus the acute nephritis, which accompanies diphtheria, is probably due to the action of the soluble products of the Klebs-Löffler bacillus, rather than to the specific microbes. It is probable that there is no infectious agent which may not, by its own presence or that of its products, give rise to acute or subacute nephritis. Whether Bright's disease is ever due to exposure to cold, apart from microbes, is open to doubt. It is probable that lead, mercury and other chemical and mineral poisons are, in some instances, true causes, as has hitherto been taught.

Herter's figures go to show that the poison of alcohol is influential in the production of nephritis with large kidneys rather than nephritis with small kidneys. The pathogeny of the small contracted kidney is still very obscure. The experimental observations of Morse indicate that the toxins of the staphylococcus pyogenes are capable of initiating those proliferative changes in the interstitial connective tissue of the kidney which constitute so prominent a lesion of chronic diffuse nephritis, and it is probable that the toxic products of numerous pathogenic bacteria may induce such connective-tissue changes, while typhoid fever and malaria may be followed by chronic diffuse nephritis, and possibly also pneumonia, influenza and measles. At present scarlet fever is the disease which we must hold most often responsible for diffuse nephritis with contracted kidney.

Colon bacillus bacteriuria is often associated with some morbid process in the genito-urinary tract, such as nephritis, pyelitis, cystitis and the possibility of an ascending infection (gonococcus, tubercle bacillus, etc.) from the bladder or prostate gland is now well recognized.

As to the pathogeny of amyloid kidney, recent experimental studies make it clear that the filtrate of cultures of the golden staphylococcus is capable of inducing amyloid changes in the spleen, liver and kidney. The observations of Cracow, Maximoff and others with reference to the artificial production of amyloid degeneration in animals give us a satisfactory explanation of the influence of prolonged suppuration on the genesis of amyloid degeneration.

WHAT BOSTON DID FOR THE SOLDIERS.

The exigencies of the war with Spain made unexpected demands upon the medical communities of the larger eastern seaboard cities, and brought home the horrors of war more closely than ordinarily happens in a distant campaign.

Although the dangers of military operations in a tropical country were well known, yet the full realization of the sufferings of the soldiers came at a time when the war was practically ended, and the community was insistent in its demands for the restoration of the sick soldiers to a northern climate. The original plans of the government had contemplated the establishment of hospital camps in the high country of eastern Cuba, but when this was proved to be absolutely impossible, the transportation to, and care of, thousands of sick soldiers on the northern and eastern coast of the United States became a sudden necessity.

That Camp Wikoff became eventually an excellently equipped station and hospital is well known, but at first the facilities were so scanty that it was impossible to care for even a moderate number of sick, and when the numbers increased to thousands, it is not surprising that the government found itself in the humiliating position of asking help of the various communities near by.

It is characteristic of this "land of contrast" of ours, that while, perhaps, unjustly severe in its arraignment of the government, each community gave its help with an unquestioning and ungrudging promptness, which is beyond praise. In fact, many private hospitals begged for sick soldiers, and taxed their scanty resources to meet a demand made upon them without any pretence of justice, except in the right of common humanity.

It is to be hoped that a full record of all the volunteer help in the different cities may be drawn up

eventually. The demands upon the city of Boston were not small and deserve comment. Sick soldiers were brought here for hospital care from Santiago, Porto Rico, Camp Wikoff and Chickamauga. In addition to this, many soldiers discharged on furlough before complete recovery, suffering from relapse, on their return sought refuge in the hospitals near their homes.

The Massachusetts Volunteer Aid Association received, in Boston, nearly one thousand sick soldiers demanding hospital care chiefly in the month of September and early October. The sickest soldiers were the one hundred and sixty brought on the United States hospital ship *Olivette* directly from Santiago, and it is doubtful if there ever has been landed here a more pitiful cargo of men than these fever and dysentery stricken unfortunates.

The sick soldiers from Santiago, brought by the Massachusetts hospital ship *Bay State*, were also in a pitiable state, but the excellence of the equipment of this ship made it possible to give assistance during the passage, which placed many of the patients well on the road to convalescence.

Those brought by the *Relief*, as well as those brought by train from Camp Wikoff, were, in many instances, convalescents, as is equally true of those coming from Porto Rico, but, in many instances, the convalescents needed the greatest possible care.

Owing to the energy of his Honor Mayor Quincy, and of the Trustees of the Boston City Hospital, the help of the State authorities, and the efficient ambulance corps, the liberality of the Massachusetts General, Carney, Marine and Homeopathic Hospitals, the sick soldiers were transferred to hospital care without delay. It cannot be said that the capacity of the city was taxed to its utmost, as the excellent hospital at Long Island, especially enlarged through the instance of the mayor, was never filled, nor were the huts and tents at the City Hospital ever crowded to their fullest limits.

Although the other seaboard cities, as they were nearer to Cuba, were taxed more heavily for hospital accomodations, yet the relief record of Boston remains pre-eminent, from the fact that the bounty of the State equipped a private hospital ship, the *Bay State*, whose patients received from Santiago and Porto Rico, required hospital room immediately on the arrival of the ship. It may be stated unhesitatingly that sick soldiers were never transported so far and cared for so well as on that admirably equipped ship.

The promptness with which the hospitals made ready for the care of these arrivals is beyond praise. The tent hospital camp at the City Hospital deserves a detailed description, which it is to be hoped the trustees of that admirable institution will furnish for future record. The tent ward at the Massachusetts General Hospital was also more than excellent.

Perhaps the most noteworthy feat was the transfer of one hundred and nineteen sick from Camp Wikoff on the transport *Lewiston*, the shipwreck and subsequent delivery of the patients in Boston, in an undisturbed condition, five hours earlier than the time at which they would have arrived if the shipwreck had not occurred. If our civic government will continue to furnish us with a city physician capable of meeting emergencies as efficiently as was done in this instance by our present city physician, who volunteered to take charge of the expedition, we can in this regard well defy comparison with any of the most perfect of municipal organizations.

In fact, the experience of the summer has displayed to a surprising degree the varied abilities of the medical profession. The profession expects to be asked to care for the sick, to be required to do this well and with an untiring zeal. But in future, if the experience of this past summer can serve as a guide, not alone for hospital purposes, but for ship construction, for commanders of relief expeditions by land and sea, for agents to direct organizations of relief, to bring order out of sanitary chaos, wherever administration is needed, this community will at once and with confidence turn to its doctors.

MEDICAL NOTES.

WHAT'S IN A NAME? — The ship which recently brought plague to San Francisco was not named, as noted in several of our contemporaries, *Du Chesseanne*, but *Duchesse Anne*.

CHRISTIAN SCIENCE AND HOMICIDE. — Athalie Mills, the "Christian Scientist" who "treated" Harold Frederic, and Kate Lyons the person in his service who summoned her, have been indicted by the coroner's jury in England for homicide, and are held for trial. The jury in their summing up express "abhorrence" of the Mills woman's relations to the case. In the language of Prof. William James, "Impression and intuition seem," in this case, "to have accomplished more than chemical, anatomical, or physiological information." But the result accomplished was a deadly one.

PNEUMONIA RESISTS THE ABSENT TREATMENT. — A report comes from Tacoma, Wash., of the death of the leader of the Christian Science Church of Tacoma from pneumonia. Resisting the desires of his family that he should have medical treatment, he placed himself in the care of a woman Christian Scientist living in Illinois, who he held, regardless of distance, could relieve him. Regardless of distance, "of anatomy, of physiology and of chemistry," this intrepid and ignorant practitioner of the right thought "accomplished" so much that the self-appointed victim died.

LIFE INSURANCE AND CHRISTIAN SCIENCE. — The life insurance companies are beginning to look askance at Christian Science fanatics as poor risks; their healers "accomplish" too much.

X-RAYS IN 1600. — "In *Notes and Queries*," says the *New York Times*, "a story is quoted written

by Mir Muhammed M'asun in 1600. An exiled prince meets a man who is carrying what are designated as 'hakku tubes.' Looking at the man the prince discovers that just as long as the man holds the hakku tubes his entire interior economy is visible. The prince at once purchases the tubes. Coming to Ghuzni, he finds a patient. The King of Ghuzni is suffering from dyspepsia. There is good reason for the king feeling so uncomfortable, for when the hakku tubing is applied, lo! it is discovered that the patient had swallowed not less than two water-snakes. Readers will then observe that the x-rays have been anticipated. The original of the story is found in Elliot's 'History of India' by its own historians. After a while we may discover that Noah's ark had water-tight bulkheads and twin-screws."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the two weeks ending at noon, November 16, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 100, scarlet fever 47, measles 110, typhoid fever 31.

Bequests to Hospitals. — By the will and codicils of Mrs. Lucretia A. Wilder, filed in the Suffolk probate office last week, an estate of about $16,000 is given to the Winchester Home for Aged Women in Charlestown, the Massachusetts General Hospital and the Boston Homeopathic Hospital, in equal shares.

"Bay State" Purchased by the Government. — The Massachusetts hospital ship, *Bay State*, has been purchased by the U. S. Government for the sum of $100,000. The vessel will retain the name of *Bay State* and will be used as a transport to carry soldiers and supplies to and from Cuba and Porto Rico.

The Medical Work of the Massachusetts Volunteer Aid Association. — Attention is called to the announcement on page 508 of the next two meetings of the Boston Society for Medical Improvement, to attend which members of the Massachusetts Medical Society are invited. The relation, by officers of the Massachusetts Volunteer Aid Association, of the medical work done in Boston, on the *Bay State*, in Cuba, Porto Rico, and Montauk Point, Chickamauga and Camp Alger, will prove of interest and importance.

Dedication of the New Wards of the Newton Hospital. — The four new wards which have recently been added to the Newton Hospital were dedicated last Saturday with appropriate exercises.

NEW YORK.

Comparative Mortality of the Boroughs. — In comparing the mortality of the four Boroughs, Manhattan, Brooklyn, Queens and Richmond, we find that the highest number of deaths in proportion to the population is still in Richmond (Staten Island), where the average death-rate during the four weeks was 21.70, and the lowest in Brooklyn, where the average death-rate was 16.52. The lowest death-rate recorded in any of the boroughs was 11.82 in Queens during the week ending October 22d, and the highest, 31.34, in Richmond during the week ending October 8th.

A Criticism of Cornell Medical School. — There does not appear to be as yet any amelioration in the feeling of antagonism between the University of the City of New York and Cornell, and in his report presented at the annual meeting of the Council of the University, held November 7th, the Chancellor, the Rev. Dr. MacCracken, was especially severe on the latter institution. After stating that the medical work of the University, which at the date of his report last year was in an unsatisfactory condition, was now very prosperous, the enrolment of students being more than one-half larger than in 1897 and the faculty most harmonious and efficient, he mentioned that "a few unwilling professors had been spared to join an eager sister university." He then went on to say: "We regret that the eagerness of this out-of-town corporation to collect hastily a medical school has led them to offer to matriculants of one year ago doctors' diplomas after two years' additional study. We could not meet this offer after having announced that this class of 1899 should be our last three-years' class. We preferred to lose a score or two of students from our second-year class rather than meet this cut in rates." In another part of his report he refers to co-education in medical schools as wholly unsuited to metropolitan conditions.

Chlorine Gas in Diphtheria. — In the Kingston Avenue Hospital for Contagious Diseases in Brooklyn a series of tests have recently been made of the treatment of diphtheria by inhalations of chlorine gas deprived of its irritating qualities by means of the process devised by Dr. P. M. Bracelin, of Davenport, Iowa. The existence of true diphtheria was proved by bacteriological examination in every instance, and the reported results are extremely satisfactory, the mortality being only four per cent. Twenty-four consecutive cases, it is stated, were treated, without a death.

A Physician Elected to the Legislature. — Dr. Nelson J. Henry, Surgeon of the Ninth Regiment New York Volunteers and recently Assistant Surgeon-General of the State Militia, has been elected a member of the Lower House of the Legislature.

In Memory of Dr. John Blair Gibbs. — In connection with the exercises in celebration of the One Hundred and Thirty-Second Anniversary of Rutgers College at New Brunswick, N. J., on November 10th, a tablet was unveiled to the memory of Dr. John Blair Gibbs, of New York, who entered the Marine Corps Medical Service and fell at Guantanamo in the first land conflict of the Spanish war. The tablet was presented by Prof. Robert W. Prentiss, who was a classmate of Dr. Gibbs at Rutgers, and the principal address was made by Dr. Wm. K. Van Reypen, Surgeon-General of the Navy.

PRECAUTIONS AGAINST SMALL-POX. — In view of the continued existence of small-pox in the west central part of the State, where the disease has prevailed, although in a mild form, since May last, the State Board of Health has stationed a special medical inspector in the infected district, for the purpose of aiding the local health boards in suppressing the disease, and has also sent circulars to the school authorities calling their attention to the necessity of a strict enforcement of the law regarding vaccination.

Miscellany.

THE OPENING BY SURGICAL MEANS OF A NEW SIDE-TRACK FOR THE BLOOD OF THE PORTAL VEIN.

UNDER the above title, Professor Talma, of the University of Utrecht, Holland, writes an article which appeared in the *Berliner klinische Wochenschrift* of September 19, 1898, the following abstract of which appears in the *Philadelphia Medical Journal* of October 29th, and which contains a novel suggestion of considerable interest regarding the treatment of hepatic cirrhosis. The observation in the post-mortem room of thick networks of veins in adhesions between the surface of the liver and abdominal wall led Talma to the idea, that by sewing the liver and great omentum to the abdominal wall a collateral circulation could be artificially established which would relieve the ascites of hepatic cirrhosis in cases in which the function of the liver cells was retained. Acting on this suggestion, Professor von Eiselsberg operated upon a case in which tapping had been performed five times, but had been rapidly followed by reaccumulation of the fluid. On opening the abdomen the surface of the liver was found granular, and the serosa white and thickened. The gall-bladder and great omentum were sewed to the abdominal wall, and the wound was closed. The wound healed kindly and the fluid did not re-accumulate in any considerable amount. The spleen remained enlarged, however, and as this was believed to be due to venous stasis, the abdomen was again opened, about three months after the first operation, and the spleen was sewed to the abdominal wall. During this second operation, occasion was taken to examine the site of the previous operation, and the subserous veins of the liver were found much enlarged in the region which was adherent to the abdominal wall. The results of both operations were satisfactory; the ascites did not return, the spleen decreased in size, and enlarged superficial veins between the site of operation and the intercostal veins became visible. The patient left the hospital relieved of all symptoms about a month after the second operation, and was seen in perfect health two years later. The possibility of the spontaneous formation of a caput medusæ resulting in relief of the distressing symptoms arising from obstructed circulation in hepatic cirrhosis has long been recognized, but any attempt at artificially producing a caput medusæ has not, so far as we know, been previously reported. The operation can be of use, as Talma has pointed out, only in cases in which the symptoms are due to interference with the circulation without any lessening of the activity of the liver-cells, as shown by scholia or hypocholia of the feces, urobilinuria, jaundice, etc. In these limited cases, taking into consideration the gravity of the prognosis of the disease under the ordinary medical measures of treatment, and the relatively slight danger which would be incurred by so simple an operation, the procedure would seem worthy of a trial.

THE LIBEL SUIT OF AN OSTEOPATHIST.

THE editor of the *Medical Age* has been sued for $25,000 by one Dr. William Smith, Osteopathist, on account of an editorial which Dr. Smith considers as reflecting discredit upon him. In regard to the matter Dr. Wm. M. Warren, the editor, expresses himself as follows:

"I need hardly assure any one familiar with the past record of the *Age*, that William Smith, M.D., D.O., has a large contract on his hands. His quest for damages is likely to prove futile, and his armor will need patching if it is to withstand the hard legal knocks that will be showered and battered upon it before he touches one dollar of the *Age's* money!

"Pray do not fancy, however, that William Smith and Osteopathy are to be lightly dismissed with the contempt that they merit. There is no use in blinking the fact that the lack of efficient organizations amongst reputable medical men has permitted the whole brood of quacks and charlatans to flourish apace. By the strangest irony of fate, Osteopathy, in some respects the most grotesque of medical aberrations, has well illustrated Lecky's dictum that a small but cohesive and determined minority can exert a political influence wholly disproportioned to its real weight and numbers. . . .

"Emboldened by its success, Osteopathy now enters the courts and offers battle to a medical journal which disputes its respectability. The challenge is accepted. In the interest of science, in defence of ethical and honorable medicine, in defiance of a quackery that constitutes a deep disgrace to an enlighted age and a stain on the communities which give it shelter, the *Age* proposes to maintain its position and to continue its denunciations of the ignorant pretenders who fatten on the sufferings of the credulous and confiding.

"I need not point out the bearings this contest must have on the interests of legitimate medicine, and I earnestly hope that the *Age* may count on the moral support and commendation of the entire profession."

THERAPEUTIC NOTES.

FOR LOCAL ANESTHESIA (Dobisch):

℞	Chloroform	ʒ ii
	Æther	ʒ iii
	Menthol	gr. xii

M. Use in an atomizer over the part to be operated upon.

IN cases of sunstroke Dr. H. Gras claims to have obtained wonderful results from the employment of trinitrin (nitro-glycerin), whether the attack present symptoms of severe cephalalgia or those of meningitis. He advises the following formula:

℞	Solution of trinitrin (1–1000)	gtts. xx
	Aquæ destil.	ʒ x

M. Of this a teaspoonful is administered every quarter of an hour, until the symptoms disappear completely, controlling at the same time the frequency of the doses in proportion to the progressive amelioration of the patient.

Chronic Arthritis Deformans. — A. Delcourt[1] reviews the comparatively infrequent occurrence in children of chronic arthritis deformans. Heredity seems to be an important predisposing factor in this affection, the principal cause of which is undoubtedly to be traced to a general disturbance of nutrition. The author does not incline to the belief that scrofulosis and the affection under consideration have any relation to each other; he rather thinks that there exists a certain antagonism between the two. The therapy, unfortunately, in view of the innate tendency of the disease to progressive development, is but little successful; the creation of hygienic surroundings is most to be relied upon; internally — sodium salicylate, arsenic, tincture of iodine; externally — baths, massage and electricity.

Correspondence.

THE BACTERIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

Boston, November 9, 1898.

Mr. Editor: — Apropos of the editorial on the bacteriology of acute articular rheumatism in your Journal of November 3d, the recent experiments of Prof. I. Savtchenko,[1] at the University of Kazan (Russia) may be of some interest. Of six cases of acute articular rheumatism under observation the author found in four in a pure state, and in the fifth case mixed with streptococci, an anærobic bacillus identical in its morphological, biological and pathogenetic characteristics with the one described by Achalme. The sixth case was that of a convalescent from the disease, and this was probably the reason why the search for the bacteria in it proved futile. The author considers the following as the best culture medium: to a neutral bouillon, slightly sweetened with a one-half-per-cent. solution of lactose, there are added ten cubic centimetres of a normal salt solution; this is neutralized by lactic acid, until the reaction is faintly acid, three-fourths of this bouillon are added, at the moment of the preparation of the culture, to a quart of milk sterilized in an autoclave (digester) to the temperature of 302° F. To ten cubic centimetres of this mixture one cubic centimetre of blood is added, and after distributing it in two tubes an anærobic culture is prepared. Even by the end of twenty-four hours the development of the culture becomes evident.

As to the biology of Achalme's bacillus, it secretes a whole series of substances, endowed with negative chemiotaxis and with necrotizing properties, and it is principally to these substances which develop by fermentation in the medium, that the bacteria owe their pathogenetic properties. They themselves possess, however, no negative chemiotaxis: thus, if, after having previously provoked a leucocytosis in the peritoneal cavity of the experimented animal, a certain quantity of the culture be injected into it, phagocytosis at once enters into play and the animal survives; whereas a similar quantity injected subcutaneously or into the muscular tissue proves fatal in a short time. The diapedesis of leucocytes is hindered by the presence of substances endowed with negative chemiotaxis and formed during fermentation; these substances seem to a certain extent to be neutralized by the peritoneal endothelium, and this may possibly be the reason why the same animal survives the injection of a certain quantity of the culture into the peritoneum, and succumbs to the same quantity when injected subcutaneously; thus, the guinea-pigs which received into their peritoneal cavities one-fourth cubic centimetres of a culture, the virulence of which was preserved by successive inoculations of pigeons, survived, thanks to an influx of leucocytes and the phagocytic reaction produced by them four to five hours later; whereas the other animals which received only one-twentieth cubic centimetres subcutaneously succumbed twenty-four to thirty-six hours later, presenting all the symptoms of edema and neurosis of the subcutaneous cellular tissue. The same animals, which, after having received the first injection into the abdominal cavity, become refractory to doses fatal to others, succumb nevertheless to a minimum fatal dose injected subcutaneously. Immunized rabbits resist infection, thanks to phagocytosis, and become indifferent toward the various toxic products secreted by the bacteria. Salicylate of soda retards the growth of the bacteria, when salicylic acid is disengaged during fermentation.

The bacteriology of acute articular rheumatism once established on a more or less positive basis (as it promises to be in the near future), the nature of the affection, or rather of the affections, known under the current name of chronic articular rheumatism, will undoubtedly become much clearer than it is now. Professor Zacharin in his "Clinical Lectures"[2] delivered at the Medical Department of the Moscow University called attention to the incorrectness and vagueness of the term acute articular rheumatism, as applied to several affections, which seem to differ from each other not only in their etiology but also in the nature of the parts affected: thus, although the most prevalent and the most frequent affection is that of the articulations, there occur in these cases sometimes affections of the skin, as evidenced by cutaneous hyperesthesia, dermatitis, etc.; or of the bones, most frequently in the form of periostitis (there is pain along the tract of the bone aggravated by pressure, and frequently swelling); then the cartilages may become affected, as in perichondritis of the ribs or of the cartilages of the larynx or of the ears; there is also a muscular rheumatism, very likely a myositis, as evidenced by a high temperature, tension and tenderness on pressure and motion, and later on emaciation of the affected muscles and the formation of cirrhotic indurations; finally the nerves become affected, the so-called rheumatic neuritis.

As regards the etiology of the affections in question, it is true that acute rheumatism is the most frequent causative agency, but other acute infectious diseases play a by no means unimportant rôle, thus: gonorrhea, syphilis, tuberculosis; gout, also a plain cold, and various traumatic influences, especially those that act constantly, even if not strongly, as intense, fatiguing bodily activity; then comes abuse of alcoholic drinks; alcohol, even if it does not directly cause any affection of the articulations, tends undoubtedly to create a predisposition towards them. It is easily understood that the variety of affections current under the name of chronic rheumatism requires also a variety of treatment in evident contradistinction to the treatment of acute articular rheumatism, in which the salicylates or their combinations exert what may fairly be put down as a specific effect; myositis will be benefited by massage, which does harm in periostitis by aggravating the pains; electricity is very useful in affection of the joints; neuritis requires rest, and after the acute stage is over cautious massage, chiefly of the neighboring muscular masses (with a derivative aim in view), etc. For a want of a better name Zacharin proposes the more convenient term polyarthritis chronica, the joints being the parts most frequently affected. The term has at least the advantage of not creating any confusion in the mind of the student and of establishing a distinction between an acute infectious disease and its consequences. It is just as logical to call the disease chronic articular rheumatism, that is, a chronic condition of an acute infectious process, as it would be to call the chronic bronchial catarrh frequently following measles, chronic measles, or the chronic diarrhea left after a typhoid, chronic typhoid.

Very truly yours,

A. Bovinsky, M.D.

[1] Russian Archives of Pathology, Clinical Medicine and Bacteriology, May 31, 1898.

[2] English translation now in press.

[1] Revue mensuelle des maladies de l'enfant, July, 1898; Munch. med. Woch., No. 40, 1898.

METEOROLOGICAL RECORD

For the week ending November 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...30	29.93	46	48	43	91	89	90	N.	W.	8	5	O.	O.	.07
M...31	29.83	45	50	40	88	63	76	W.	N.W.	12	12	C.	C.	
T....1	30.25	45	51	40	69	71	70	N.W.	S.	8	9	C.	C.	
W...2	30.16	53	63	43	72	56	64	S.W.	W.	15	12	O.	C.	
T....3	30.41	49	56	42	72	67	70	N.W.	S.W.	8	12	C.	C.	
F....4	30.48	49	56	41	77	77	77	W.	S.W.	4	12	C.	C.	
S....5	30.18	48	57	40	98	84	90	N.E.	S.	3	10	G.	F.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 5, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	3,438,899	1068	321	7.11	13.68	2.61	1.22	1.53
Chicago . . .	1,819,226	—	—	—	—	—	—	—
Philadelphia .	1,240,236	—	—	—	—	—	—	—
St. Louis. . .	625,000	—	—	—	—	—	—	—
Boston . . .	528,463	202	49	10.00	10.00	2.00	4.00	3.50
Baltimore . .	506,389	182	57	10.45	8.80	—	.55	9.35
Cincinnati . .	405,000	—	—	—	—	—	—	—
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	295,000	—	—	—	—	—	—	—
Washington . .	277,000	126	19	12.64	13.43	.79	4.74	3.94
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	46	10	10.85	19.53	—	4.34	4.34
Nashville . .	87,754	30	8	23.31	16.66	—	10.00	10.00
Charleston . .	65,165	35	9	15.44	14.30	8.58	2.86	—
Worcester . .	109,240	32	17	18.78	3.13	6.26	9.39	—
Fall River . .	98,919	—	—	—	—	—	—	—
Cambridge . .	89,724	26	9	11.55	7.70	7.70	—	3.85
Lowell . . .	88,641	25	7	16.00	12.00	8.00	4.00	4.00
Lynn	68,703	18	3	11.11	11.11	—	11.11	—
New Bedford .	66,340	17	10	17.64	5.88	5.88	5.88	5.88
Somerville . .	61,101	8	2	12.50	—	—	—	—
Lawrence . .	57,263	21	11	23.80	—	14.28	4.76	—
Springfield . .	56,501	17	4	17.64	—	5.88	5.88	5.88
Holyoke . . .	43,424	13	12	13.58	27.16	—	6.79	—
Brockton . .	37,278	—	—	—	—	—	—	—
Salem	36,883	12	4	—	8.33	—	—	—
Malden . . .	34,613	3	1	—	33.33	—	—	—
Chelsea . . .	33,468	11	3	9.09	—	—	—	9.09
Haverhill . .	32,022	11	2	18.18	33.33	—	9.09	9.09
Gloucester . .	30,589	7	0	—	—	—	—	—
Newton . . .	29,716	—	—	—	—	—	—	—
Fitchburg . .	29,438	4	2	—	50.00	—	—	—
Taunton . . .	28,167	12	5	8.33	—	8.33	—	—
Everett . . .	25,338	7	1	14.28	—	14.28	—	—
Quincy . . .	23,549	5	3	20.00	—	—	—	20.00
Pittsfield . .	22,643	—	—	—	—	—	—	—
Waltham . . .	21,812	4	1	—	—	—	—	—
North Adams .	20,971	4	0	25.00	—	25.00	—	—
Chicopee . . .	17,842	4	2	—	25.00	—	—	—
Medford . . .	16,511	5	0	—	—	—	—	—
Newburyport .	14,918	4	2	—	—	—	—	—
Melrose . . .	14,032	2	0	—	—	—	—	—

Deaths reported 1,970: under five years of age 576; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 186, consumption 228, acute lung diseases 209, typhoid fever 63, diarrheal diseases 51, diphtheria and croup 42, cerebro-spinal meningitis 15, scarlet fever 6, measles 3, whooping-cough 3, erysipelas 2, yellow fever (New York) 1.

From cerebro-spinal meningitis New York 8, Washington 3, Baltimore, Nashville, Worcester, Somerville and Holyoke 1 each. From scarlet fever New York 5, Lawrence 1. From whooping-cough New York 3. From measles New York 3. From erysipelas Washington and Providence 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,318,378, for the week ending November 29th, the death-rate was 17.9. Deaths reported 3,844; acute diseases of the respiratory organs (London) 263, diarrhœa 153, fever 84, diphtheria 83, measles 65, scarlet fever 38, whooping-cough 34.

The death-rates ranged from 9.6 in Croydon to 26.6 in Liverpool, Birmingham; Bradford 16.5, Cardiff 15.0, Gateshead 22.1, Huddersfield 12.7, Leeds 15.1, Leicester 15.5, London 16.3, Manchester 23.5, Newcastle-on-Tyne 19.6, Nottingham 15.2, Sheffield 22.5, Sunderland 23.2, West Ham 12.9.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held in the Anatomical Lecture Room, Harvard Medical School, corner of Boylston and Exeter Streets, on Monday evening, November 21st, at 8 o'clock.

The subject of the evening will be: "The Medical Work of the Massachusetts Volunteer Aid Association."

Communications are expected from Drs. H. L. Burrell, E. H. Bradford, J. T. Bottomley, Mr. J. T. Boyd, Mr. W. H. Seabury and Miss C. W. Cayford.

All members of the Massachusetts Medical Society are cordially invited to be present.

JAMES G. MUMFORD, M.D., *Secretary*.

BOOKS AND PAMPHLETS RECEIVED.

Present Status of Serum Therapy. By Geo. W. Cox, M.D., Chicago. Reprint. 1898.

The Mind Reader. By L. M. Phillips, M.D. London and New York: F. Tennyson Neely.

Modern Treatment of Tuberculosis. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1898.

The Abuse and Dangers of Cocain. By W. Scheppegrell, A.M., M.D., New Orleans, La. Reprint. 1898.

Koplik's Spots as an Aid in the Diagnosis of Skin Lesions. By Jacob Sobel, M.D., New York. Reprint. 1898.

The Medical News' Visiting List, 1899; Thirty Patients per Week. Philadelphia and New York: Lea Brothers & Co. 1898.

Recent Therapeutic Application of the Valerianates of Creosote and Guaiacol. By J. W. Wainwright, M.D., New York City. Reprint. 1898.

Traumatic Separation of the Epiphyses. By John Poland, F.R.C.S. With 337 illustrations and skiagrams. London: Smith, Elder & Co. 1898.

Des Indications et de la Technique des Lavages Uréthro-Vésicaux. Par le Dr. G. Richard d'Aulnay, Ancien Interne de St. Lazare. Paris. 1898.

Manifestations of Syphilis in the Mouth. The Dangers of Specialism in Medicine. By L. Duncan Bulkley, A.M., M.D., New York. Reprints. 1898.

Note on Four Micro-organisms Isolated from the Mud of the River Thames, which Resemble Bacillus Typhosus. By A. C. Houston, M.B., D.Sc., London.

Ergot in Chronic Malaria. Dermoid Cyst over the Centre of the Large Fontanelle. Three Cases of Amaurotic Family Idiocy. By A. Jacobi, M.D., LL.D., New York. Reprints. 1898.

Skiagraphic Atlas, showing the Development of the Bones of the Wrist and Hand, for the Use of Students and Others. By John Poland, F.R.C.S. London: Smith, Elder & Co. 1898.

Cleft Palate; Treatment of Simple Fractures by Operation; Diseases of Joints; Antrectomy; Hernia, etc. By W. Arbuthnot Lane, M.D. London: The Medical Publishing Co. Limited.

On the Study of the Hand for Indications of Local and General Disease. By Edward Blake, M.D., Author of "Lip Chorea or Pterygoid Stammering," etc. London: Henry J. Glaisher. 1898.

Transactions of the Pathological Society of Philadelphia, Vol. XVIII, Containing the Report of the Proceedings of the Society from October, 1895, to June, 1897. Edited by William S. Carter, M.D., Recorder of the Society. Philadelphia. 1898.

Deaths (Ten), Surgical and Causes. The Dermal Coverings of Animals and Plants; A Short Résumé of Various Authors. Serpents and Their Venom: Copperhead, Coral and Rattlesnake. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati. Reprints. 1898.

Students' Histology, a Course of Normal Histology for Students and Practitioners of Medicine. By Maurice N. Miller, M.D., late Director of the Department of Normal Histology in Loomis' Laboratory, University of the City of New York. Revised by Herbert U. Williams, M.D., Professor of Pathology and Bacteriology, Medical Department, University of Buffalo. Third revised edition. Profusely illustrated. New York: William Wood & Co. 1898.

Original Articles.

THE OPERATIVE TREATMENT OF INTESTINAL FISTULA AND ARTIFICIAL ANUS.

BY C. B. PORTER, M.D., BOSTON.

Intestinal fistula follows most frequently upon operation for appendicitis, or upon the uterine adnexa. Gangrene of a portion of the contents of a hernial sac often results in a permanent fecal discharge.

Other causes less frequent might be mentioned, as wounds of the intestine, unintentional and unrecognized injury to the bowel during abdominal or pelvic operations.

Tuberculous or malignant ulceration of the intestine may lead to local adhesive peritonitis, formation of abscess in the abdominal wall with external rupture, followed by fecal discharge.

In cases of appendicitis, a fistula may be due to the gangrenous condition extending to the cecum, to faulty ligature of the base of the appendix, to localized gangrenous condition of the cecum. If non-absorbable material, as silk, is used for ligature in abdominal operations where sepsis is present, an abscess may result from the silk becoming septic and result in fecal fistula.

The time was when I considered my surgical armamentarium for abdominal operations incomplete without various sizes and lengths of glass and rubber tube for drainage. These I have for a long time abandoned, and now use only gauze wicks. The fact known to all, that in many cases the appearance of feces in the wound was not observed till many days after the operation, led me to feel that pressure ulceration was the cause. It is well recognized that many fecal fistulæ ultimately close if given sufficient time. Many weeks, and sometimes many months, are required. The delay, however, is attended with much suffering due to confinement to bed in many cases, to the offence to patient and friends from the constant fecal discharge, but most of all to the severe pain caused by the contact of the discharge with the skin, producing irritation even to ulceration. I have known this to be so severe as to prevent sleep and demanding such frequent dressings as to tire out both patient and nurse. This irritation is the worse the higher up in the intestine the fistula is located. Malnutrition may be marked and this particularly in those cases where the opening is in the jejunum or upper part of the ileum.

The surgeon must endeavor to so improve the technique of this operation as to eliminate most, if not all of the dangers, and thereby feel justified in urging upon the sufferer early operation for his relief. What can the surgeon accomplish in the way of prophylaxis?

(1) Urge early operation, when possible, in such cases as might result in fecal fistula to forestall, if possible, the effect of the septic processes which might lead to sloughing of the bowel, if not averted by appropriate antiseptic treatment.

(2) Discard all forms of drainage-tubes, except in rare special cases and substitute gauze drainage. It has seemed to me that thought enough is not always given to the method of placing a gauze drain. Except in rare cases for the sake of controlling hemorrhage as well as to drain, the gauze should not be packed into the wound, but merely as a wick passed down to the bottom and sufficiently small, so that if the wound is partially closed by sutures, it would not be choked at the outlet and its function thereby impaired.

(3) When possible, never use in the abdominal cavity anything but absorbable material for ligatures or sutures. I am aware that for ligature of an ovarian pedicle and intestinal suture we have nothing to take the place of silk, and where sepsis is not present, it is all that can be desired and is in time absorbed.

In the operative treatment of intestinal fistula and artificial anus, it is well to consider the more usual forms and to recognize that in most cases the artificial anus is an exaggerated form of fecal fistula. In recent fecal fistulæ the tract of the fistula is not lined with mucous membrane. (See Fig. 1.) In old ones often the mucous membrane has grown and lined the fistula. (See Fig. 2.) I shall refer to these forms again under head of treatment.

Again, the relation of the intestine to the parietes must be considered. In some the gut runs parallel with the abdominal wall with an opening connected by a fistulous tract with the surface. (See Fig. 3.) Again, the gut has more or less of an angle at the point of attachment and the acuteness of this angle determines largely the amount of fecal discharge, the spur interrupting the onward passage of the fecal current. (See Fig. 4.) An artificial anus is generally an exaggeration of this later condition, the spur projecting into the parietal wound so as to shut off the lower part of the bowel and obstruct the fecal flow into it. (See Fig. 5.)

Treatment. — Palliative. I have already stated that many fecal fistulæ close spontaneously in time. Can the surgeon hasten this desired result? Curetting of the sinus is often of great advantage. I recall a case of my own in a gentleman very fat. The appendix was gangrenous, long and large, filled with a number of fecal concretions. Its base was reached and ligated with the greatest difficulty. The case progressed well, but a fistula persisted. I curetted deeply, but found at that time no cause for its persistence. The next morning, however, a small, fecal mass presented at the opening. The next day the same thing occurred and in a few days the fistula closed. I suppose that one of the fecal concretions had escaped from the appendix and lay undetected owing to the great depth of the wound. If silk has been used for ligature and fistula persists, it should be suspected as the cause and hunted for with the curette or a crochet needle; the latter I have found very useful in such cases, the hook on the end of the needle catching readily in the loop.

When the fistula is lined by simple granulation tissue, application of nitrate of silver is of great benefit. When there is a mucous lining, this must be thoroughly destroyed by the actual cautery or dissection. In using the cautery, care is necessary to prevent injury to the intestine by its tip. When the spur of the bowel wall projects into the fistula, this can be destroyed to a sufficient extent to allow of the onward flow of the feces by application of pressure forceps and producing slough of the spur.

Dupuytren devised a clamp for this purpose, but that was before the day when hemostatic forceps of all sizes and lengths were in every surgeon's bag. In

[1] Read before the Surgical Section of the Suffolk District Medical Society, May 4, 1898.

using these pressure forceps there is danger of nipping another knuckle of intestine lying behind in the angle of the spur. (See Fig. 6.)

When any one of the viscera is abnormally attached to the abdominal wall there is danger of intestinal

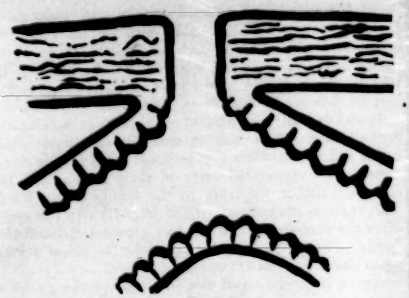


FIG. 1.

obstruction, the adhesion acting as a band. Recognizing this danger and the blind application of pressure forceps to the spur, it is a question whether such cases should not be submitted to operation. I believe the only satisfactory way is to dissect the bowel free from its abnormal attachment so that it can be brought out of the abdominal cavity and properly dealt with.

OPERATION FOR FECAL FISTULA AND ARTIFICIAL ANUS.

The bowels should be properly prepared for two days before operation by free catharsis and suitable diet, the skin made as clean as possible before anesthesia. Anesthesia being complete, the intestinal opening should be cleansed and a gauze tampon inserted into it with thread attached to prevent any movement of it and thread secured in snap forceps. I then dissect up the skin about half an inch from the opening and surrounding it, the faces of the flaps are turned towards each other, and tightly sutured to prevent any escape of feces. The next step is to enter the peritoneal cavity. This is done by extending the

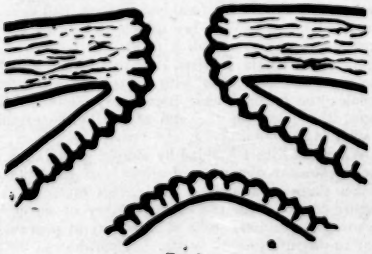


FIG. 2.

incision around the fistula upward or downward, obliquely or vertically, as may seem best to the operator, for an inch or more and carefully dissecting down to the peritoneum for the purpose of entering its cavity outside of the adhesions. This is most essential that the exploring finger may determine the extent and location of the adhesions. Then the finger directing the operator, the button of skin with the intestine attached can be freed and brought outside. (See Fig. 7.) The intestines are then walled off. The operative field on the intestine must be shut away from the fecal current above and below the fistula at a sufficient distance from it to allow of easy manipulation. This may be done by numerous devices, as clamps, springs, rubber tubing, etc., according to the selection of the operator. I have found a small wick of gauze, eight to ten inches long, most satisfactory and the pressure exerted under the control of the surgeon. I place it by passing a pair of small hemostatic forceps through the mesentery close to the intestine, seize the wick, draw it through and tie sufficiently tight to control all escape of feces. The same is done on both sides of the fistula. The sutures in the button of skin are removed, the gauze tampon pulled out and the intestine and its surroundings cleansed afresh. The surgeon has now to decide whether a partial or complete resection of the intestine is necessary. If complete, whether he will use an end-to-end suture or some of the various devices invented for that purpose, Senn's plates, Murphy's button, etc. I myself prefer an end-

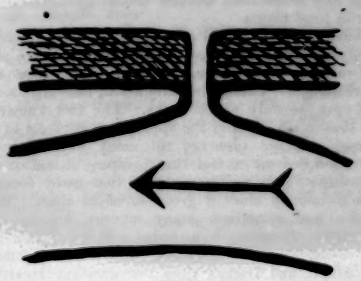


FIG. 3.

to-end suture, if the condition of the patient will allow the requisite time.

In exsection of a portion of gut, care must be taken in ligature of the mesenteric vessels not to interfere with the supply to the cut ends, otherwise sloughing will occur and the suture fail. When the opening has infringed largely upon the lumen of the intestine leaving only a narrow band next to the mesentery, I have excised very obliquely, leaving the band next the mesentery, for it has long been known that the sutures next the mesentery are most apt to be faulty.

Before suturing I place some guide threads, one at the mesenteric border and another opposite it at midpoint of the divided end of the intestine and on each side. By these the cut ends can be kept equally stretched, which greatly facilitates the placing of the sutures. (Fig. 8.) I am practically indifferent to the method of suture. I have had equally good results with the continuous, the mattress and the Czerny-Lembert stitch. Often a combination answers best. I usually place first a continuous suture of fine catgut around the cut edge of the gut, including all the coats, then a continuous stitch of fine silk uniting the cut ends, and reinforce it by a Czerny-Lembert or simple interrupted suture. With the suturing finished, the guide threads

should be withdrawn and the field of operation again cleansed. The surgeon should inspect his work to see if it is complete, the gauze ligatures around the intestine removed and the intestine dropped into the abdominal cavity. When possible, the omentum should

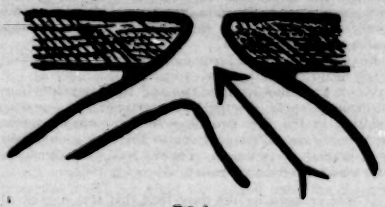


Fig. 4.

be drawn down over it. Before closing the wound, the cicatrical tissue should be removed sufficiently to expose afresh the muscles on each side when possible.

There is this caution to be mentioned. In some cases, owing to the protracted gaping of the wound, the edges are very unyielding and I have twice had to drag the edges together with two pairs of double hooks while the stitches were being tied. This is especially the case in operations for the cure of umbilical hernia. The recti are widely separated and exposed with difficulty. In one such case, in addition to usual ones, I used a number of mattress sutures of silkworm gut, entered an inch and a half away from the edges of the wound and through the whole thickness of the abdominal wall. The result was a cure of the hernia which was complete months afterward.

I have used this deep mattress stitch recently in a case of double intestinal fistula with success, in which the edges of the parietal wound were drawn together by double hooks with difficulty.

For the final closing of the wounds use silkworm gut or silver wire; I prefer the latter. When the laxity of the abdominal wall will allow of it, I prefer to close an abdominal wound by four layers of absorbable sutures.

(1) A continuous suture of the peritoneum.

(2) An interrupted one of animal tendon through muscles and fascia.

(3) A continuous one of fine catgut, approximating accurately the edges of the fascia, and finally, a continuous one of fine catgut closing the skin wound. I

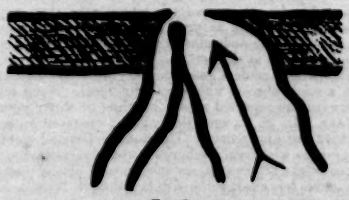


Fig. 5.

have used this method for a long time in all cases in which it was practicable, and feel that the accurate adjustment of the different layers results in the best and strongest cicatrix obtainable, and prevents, as far as the surgeon can do so, any subsequent hernia.

There is some difference of opinion as to the advisability of immediate complete closure of the abdominal wound. Treves says on resection of the intestine, some advise attaching the sutured coil to the parietal peritoneum and leaving the parietal wound partly open. This is advised "if there is any doubt as to the perfection of the suturing," and he adds, "there should be no more doubt upon that point than upon the perfection of the ligaturing in hemorrhage or upon the perfection of the reduction in operating upon strangulated hernia. If there are irremediable weak points in the suture line, an artificial anus should be established at once."

I have had in one case to regret not closing the parietal wound at once. This was done on the third day. The intestinal suture having proved perfect, the patient now has a hernia in the cicatrix. I have had one case in which I closed the wound, except at the lower angle through which a wick was placed into the pelvis. This was necessary because during the opera-



Fig. 6.

tion a fistulous tract leading to necrosed bone was found to communicate with the fecal fistula. This case died from sepsis on the fourth day after operation. No autopsy was allowed, but I feel confident that the dead bone was the origin of the trouble.

To conclude, the important steps are —

(1) The proper preparation of the patient as to bowels and skin.

(2) Temporary closing of the fistulous opening by dissecting up a button of skin and suturing it to close the fistula temporarily.

(3) Entrance to the peritoneal cavity at a point some distance from the fistula to avoid adhesions and to have an intelligent exploring finger as guide in the peritoneal cavity.

(4) Freeing of the adhesions so that the intestine and fistula can be brought out of the peritoneal cavity.

(5) Careful walling of the peritoneal cavity from the seat of operation.

(6) Especial care in suturing the mesenteric border.

(7) Refreshing the muscular edges of the wound.

(8) The greatest care in cleansing of the sutured bowel before its return to the abdominal cavity.

(9) The firm suturing of the parietal wound.

Some fistulæ cannot be subjected to the method of treatment just described. These are usually in the large intestine of which the mesentery is often too short to allow the bowel to be brought out of the peritoneal cavity, or the inflammatory adhesions may bind it down, or the peritoneal coat may have been destroyed, making it impossible to approximate healthy peritoneal surfaces, a necessity to insure union. These can be treated by intestinal anastomosis and exclusion of the diseased portion of the intestine from the fecal current. When a tortuous sinus in the abdominal wall is present, this must be freely incised to the intestinal opening before a decision as to the method of operation can be determined. I have never had a case where exclusion of a portion of the gut was necessary. Those interested in this method I would refer to the *Archives für Klinische Chirurgie*, vol. lvi, second half, page 281, on the treatment of intestinal fistula and stricture of the intestine by total exclusion of the affected part, by Dr. A. Freih, and another, *Medical Record*, February 20, 1897, on unilateral and complete exclusion of the intestine for fecal fistula by F.

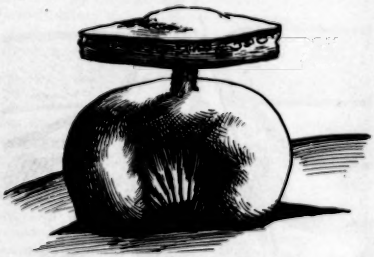


FIG. 7.

Kammerer, M.D. I should like to report a few cases which will illustrate some of the points in this paper. (Some of the figures are from Senn.)

CASE I. Graphelea Young, from Lexington, N. H., aged sixty-seven, was operated upon in August, 1879, five years ago, for a strangulated right inguinal hernia. Following the operation there has been persistent fecal discharge from two openings in the right groin.

Operation. January 11, 1884. Ether. A bougie was passed through the two openings which were three inches apart and the intervening tissue divided. There was disclosed the remains of the hernial sac, the ileo-cecal junction, the appendix and adjacent part of the mesentery, all bound together by dense cicatricial tissue; two openings were found in the intestine, one at the ileo-cecal junction, the other three-quarters of an inch away in the ileum.

With a finger in the intestine, the gut was carefully freed from the abdominal wall, and the expediency of resection of the bowel was considered, but it was not thought safe as it involved the removal of the appendix and a portion of the cecum and ileum.

The two openings in the bowel were therefore excised — that near the cecum involved in its excision a portion of the cecal wall.

On attempting suture of the resulting wound — it became evident that the lumen of the ileum would thereby be too much narrowed. So the incision was prolonged *upwards* in the ileum, making an oval wound, which could then be sutured transversely to the edge of wound in the cecum, after the manner of a modern pyloroplasty.

The wound was closed in the accustomed manner, with interrupted silk sutures, inverting the raw edges into the bowel; a number of extra sutures, further strengthening the angle, were introduced in a second layer. Bowel replaced — the abdominal ring was closed by deep, silver-wire sutures, and the skin approximated by superficial stitches of silk, except at the lower angle where a rubber drainage-tube was placed.

Employed gauze compress and regular Lister dressing, firmly held in place by a spica bandage.

Whole operation required two and three-quarters hours, the carbolic spray playing throughout; except for severe vomiting in the first two days, recovery was uneventful; the primary rise of temperature to 101° was soon followed by a normal fever curve. Patient was discharged well, nine weeks after the operation, April 14, 1884.

It will be seen by the date that this was one of the early cases of cure of fecal fistula by radical operation.

CASE II. John D. S., aged fifty-two. In 1882, two years previous to the operation, the patient had a strangu-

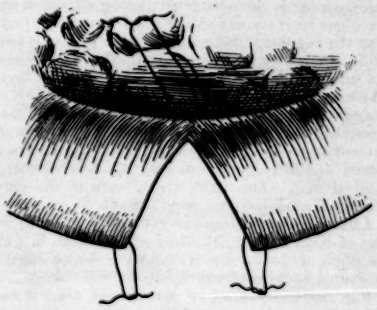


FIG. 8.

lated right inguinal hernia which was not reduced and resulted, at the end of fourteen days, in a fecal fistula. For eighteen months most of his feces had discharged through the opening. He had great trouble in keeping himself clean and had been confined to his bed most of the time. He had lost much in weight.

Operation. An incision was made down upon the ring in a line with the inguinal canal, about six inches long, and after careful dissection, two ends of the intestine were found projecting through the ring. They were carefully dissected to free them, and the edges were then approximated with fine silk sutures. The sutured intestine was put back into the abdominal cavity and the wound closed, a drainage-tube at the bottom.

The patient made a good recovery with no complication save a small abscess which was not fecal. Some months afterwards he reported a gain in weight of thirty pounds.

CASE III. S. C., aged thirty-nine; operated upon May 11, 1893, for appendicitis. The intestinal wound was found gangrenous with fecal discharge in the abscess cavity. Seventeen weeks afterwards an unsuccessful plastic operation was done for closing the fistula, without benefit. Four months afterwards I operated.

An incision was made so as to enclose the skin about the fistula in an elliptical shape. There was considerable thickening of the skin which was freed down to the bowel. The button of skin thus separated was grasped with large, compressing forceps. The wound was thoroughly douched and the intestine drawn out as far as adhesions would per-

mit and packed about with sterile gauze. Then the indurated skin surrounding the fistula was dissected from the intestine. Exploration with the finger was then made to determine whether or no a contraction existed above or below the fistula. There was none. The fistula was excised, taking most of the intestine for an inch and a half, except its mesenteric portion. The edges were sewed together with fine, iron-dyed intestinal sutures, and after the first row, a second row was introduced to insure accurate coaptation.

Provisional sutures for closing the wound were inserted, the intestine dropped back into the abdomen and gauze passed down to it for drainage. Three days afterwards the abdominal wound was closed by tying the provisional sutures, and the introduction of one strong silver-wire stitch in the middle of the wound. Perfectly firm primary union was obtained. The patient has since developed a hernia in the cicatrix. I now criticise my treatment in two respects: I did not close the wound until the third day after the operation, and allowed the patient to get about too soon, though the record is not explicit on that point. At present I keep all patients with laparotomy wounds recumbent three weeks.

CASE IV. E. M., aged forty-eight. The patient was operated upon eighteen years ago for some pelvic disturbance. The cicatrix was at the site of the usual operation for suppurative appendicitis. This fistula had gradually moved from the region of the appendix to the umbilicus, where the fistulous opening now exists, closing as it travelled. The long cicatrix is dense and firm and very little movable. The sinus at the umbilicus is tortuous and is apparently about two inches deep. There seems to be considerable massing of the parts around the fistula forming quite a tumor in the immediate vicinity. The discharge varies greatly from time to time. The operation as described in the paper before was done, and in freeing the skin and fistula an opening was made into an abscess cavity leading down in front of the bladder and containing a piece of dead bone. This was cleansed with great care. The opening in the intestine was found with difficulty on account of the adhesion of the adjacent coils. The fistula was closed first by continuous suture reinforced by Lembert stitches. The site of the operation was cleansed with sterilized water. A gauze wick was inserted in the lower end of the wound leading into the pelvis to the abscess cavity and another at the umbilicus down to the sutured intestine. The rest of the wound was closed with interrupted silkworm-gut sutures.

After the operation the patient gradually failed, and died on the fourth day, showing symptoms of sepsis with a temperature of 106°. No autopsy was allowed. My feeling was that the sepsis was due to the complication present of necrosed bone.

CASE V. A. K., aged twenty-six. Patient was operated September 15, 1897, for chronic appendicular abscess, which resulted in a fecal fistula.

Operation. January 14, 1898. An old scar enclosing the fistulous opening was dissected after the manner I have described in this paper, until the peritoneal cavity was opened. It was found that the bundle of intestines was adherent to the bladder, from which they were dissected with a sound in the bladder for a guide. They were then found attached to the uterus, posterior surface, which was also freed. It was found necessary to excise two inches of the intestine. An end-to-end suture was then made with interrupted catgut sutures, size No. 1, chromicized. The peritoneal surfaces were then approximated with interrupted intestinal silk sutures reinforced by a third layer of Lembert stitches. Great care was taken in the suture at the junction of the mesentery. The mesentery itself was sewed on each side with fine silk sutures. The sutured portion of the intestine was dropped back into the abdominal cavity when it was seen that the appendix was tied up in a mass of adhesions. The tip was large and showed evidence of old ulceration. The appendix was removed. The omentum was drawn down over the intestine and the wound closed with silver-wire and silkworm-gut stitches.

The patient made an uneventful recovery and was discharged four weeks after the operation.

CASE VI. S. K. R., operated for appendicitis June 28, 1897, in another city. The appendix was gangrenous. Six days after the first operation there was intestinal obstruction, for which he was again operated. A long convalescence followed and five months afterwards an operation for the closure of the fistula was done without success. Four months later he consulted me with reference to operation. His condition was such that I advised waiting a few weeks to regain his strength. A month later I saw him again and he was so much improved that I operated on February 13, 1898.

About half-way between the umbilicus and the anterior superior spine of the ilium was a cicatrix about four inches long by one and one-half inches wide, in the middle of which, about an inch apart, were two openings. The skin for a large area around the wound was red and excoriated from the intestinal discharge. An elliptical incision was made through the cicatrix around the fistulæ. The abdominal cavity was opened at the upper end of the incision and from above downward the adhesions to the abdominal wall and the loops of intestine were separated so that the intestine could be brought out of the wound. It was then found that the fistulæ were not in the same loop, but in adjacent loops of the small intestine and must be dealt with separately. In each a V-shaped piece of intestine was removed, except the mesenteric portion. The edges were approximated by two rows of continuous stitches, the field of operation cleansed afresh and the sutured portions dropped back into the abdominal cavity. The abdominal wall was closed with deep, silver-wire sutures. The tension was so great on account of the protracted gaping of the wound that the edges could be brought together only by the aid of two pairs of strong volsellum forceps.

The patient made a recovery uneventful from the surgical standpoint, but from the patient's, a most happy relief from a most painful condition.

CASE VII. L. P., aged twenty-four, operated August 15, 1897, for a left salpingitis resulting in a fecal fistula.

About eleven weeks afterwards I was asked to see the case and to operate. The fistula was exposed in the ordinary way. Its exact location could not be clearly determined on account of the adhesions. The edges were drawn in with interrupted Lembert sutures in two rows, the omentum drawn down over the site of the suture and the abdominal wound sewed up tight.

The patient made a good recovery. Four months afterwards was reported in good condition.

SIX CASES OF FECAL FISTULA CLOSED BY OPERATION.

BY J. W. ELLIOT, M.D., BOSTON.

CASE I. The patient, a man sixty-eight years old, entered the Massachusetts General Hospital in January, 1894. Ten months previous to entrance he had had an abscess in his left side which was opened and a fecal fistula had remained.

He was in a wretched, emaciated condition with a septic diarrhea and a fecal fistula two inches above the left anterior superior spine of the ilium. There were several sinuses and the muscles had been laid bare by a septic process, the wound being bathed in pus and feces and in a stinking condition.

The sinuses were opened and curetted but pus continued to pocket.

Operation. — On June 8th the sinuses were again slit up and two loops of intestine were found adherent to the opening, one the small intestine, and the other the sigmoid flexure, both with fistulous openings. There were four openings in the large intestine; one

admitted the forefinger. No stricture was present. These four openings were closed by one line of sutures, by turning in the intermediate bridges of tissue and stitching the upper edge of the upper hole to the lower edge of the lower hole. The omentum was then fixed over the suture line on the intestine. The sinuses were packed with gauze and provisional sutures placed in the abdominal wall, while the whole wound was packed with gauze. There was no leaking from the intestine. The sinuses and a part of the wound granulated, and were finally scraped and stitched together, uniting them as if by first intention.

The patient was discharged well and has remained so.

CASE II. J. M., man, age twenty-five years. On July 10, 1894, I resected four feet of small intestine [1] (jejunum) for gangrene due to occlusion of the mesenteric veins. I then stitched the ends of the intestine into the abdominal wound, thereby making an artificial anus. In about two weeks after the first operation it became evident that the patient was losing flesh on account of the fistula so high up in the digestive tract. The discharge from the bowel was very irritating and was actually digesting the adjacent skin.

On July 27th I freed the ends of the bowel and stitched them together. I found the intestines matted together with endless adhesions so that it was impossible to find smooth peritoneal surfaces. The suture ends therefore lay in a mass of adhesions and the wound was packed with gauze. At the end of a week an irritating stitch was removed from the intestine. At this point a slight leaking of intestinal contents occurred. The wound then closed, leaving a small fistula, but the patient gained flesh rapidly and was able to go about controlling the discharge with a water truss.

On November 16th I did another intestinal resection and completely closed the fistula. At this operation I found that the previous operation had caused a narrowing in the calibre of the bowel. I therefore made the resection wound slanting instead of at right angles to the bowel. The wound was closed without drainage. The patient made a rapid recovery.

CASE III. Patient, female, age twenty-two years. In July, 1892, had a severe attack of pain in the right iliac fossa. Remained in bed for three months with a dull pain, and lost much flesh. Pus appeared in the discharges from the bowels and was accompanied with a severe diarrhea. She entered the hospital September, 1893. In October a large abscess in right iliac fossa was opened by Dr. Richardson. The discharge from this soon became fecal and later nearly all the feces came through the fistula. At one time the fistula seemed to grow smaller after being completely dammed up with gauze for several weeks. I first saw her in August, 1894, and the fistula then showed no sign of closing.

Operation.— August 23d. After a tedious dissection of various sinuses running in different directions, a normal appendix was found and removed. The cecum was then with great difficulty dissected from its bed of firm adhesions and on its under side nearly as high up as the colon a fistulous opening was found, and closed with great difficulty, the omentum being fixed as a protective over the suture line. A sinus was found extending a long distance up into the muscles of the back, presumably due to the burrowing of feces when the experiment of closing the external opening was made. The whole wound was packed with gauze. There was no leaking and the patient made a slow but complete recovery.

CASE IV. Patient, female, age nineteen years. In January, 1895, Dr. Mumford opened an appendix abscess. In June the patient returned to the hospital with a fecal fistula in the right side which discharged nearly all the contents of the bowel.

Operation. — June 15, 1895. Skin and scar about fistula opening dissected up. Fistula then closed temporarily to prevent flow of feces. Just before opening the peritoneal cavity the wound was disinfected and a clean set of instruments taken. Two large openings high up in cecum found and closed. Fistulous tract entirely removed, and the wound closed without drainage. Prompt recovery.

CASE V. Patient was operated on for acute appendicitis by Dr. Newell at the hospital in August, 1895. A fecal fistula resulted.

September 23d. The opening in the bowel was closed by suture. Good recovery.

CASE VI. Patient, female, age twenty-nine years. Entered the hospital in June, 1887. Ten months previous to entrance she had had pain in the right iliac fossa and was soon unable to walk, later a pelvic abscess in right side was opened and drained *per vaginam*. Two months later the right tube and ovary were removed. Two weeks later a deep abscess formed on right side, which was opened near the anterior superior spine of the ilium. This resulted in a fecal fistula.

Operation. — September, 1897. The sinus was dissected down to intestine without opening it. Three coils of intestine joined the sinus, a probe in the tract entered two of these coils. These two openings were closed by Lambert sutures and dropped. The wound was then disinfected with peroxide of hydrogen and closed tight without drainage. The general peritoneal cavity was not opened. The wound healed by first intention and the patient made a perfect recovery.

[1] Annals of Surgery, January, 1895.

MENIERE'S DISEASE.[1]

BY GEO. CARROLL SMITH, M.D., BOSTON.

I WILL make the report of a case at present under treatment the introduction of my paper to-night.

The patient is a clergyman, sixty-two years old; of good family history, barring two brothers who died of malnutrition and two sisters who died underfed. Childhood not instructive; at twenty-eight had nervous prostration from overstudy in the university and began to have eye troubles, especially astigmatism. Has since had some one of the muscles of one eye cut twenty-seven times by a New York specialist. For thirty years has been afflicted at times with nervous dyspepsia and constipation. Present illness began last April while he was sitting one evening conversing in the library, feeling as well as usual, when suddenly he felt as though he was seized by some power and hurled at a distance of several feet to the floor, striking with great force on his left side. He was momentarily unconscious, but he arose with the assistance of a friend and tried to walk, but was unable to because of vertigo, and sought refuge on a couch, when vomiting began and continued

[1] Read before the Suffolk District Medical Society at its Annual Meeting, April 30, 1898.

at intervals all night, as did the vertigo, notwithstanding the recumbent position.

Added to these symptoms a most disagreeable noise in the head became apparent, sometimes hissing in character, and sometimes puffing like a locomotive. The next day he noticed he was deaf in the left ear, and although able to walk about with a cane he was dizzy and had some nausea, and a continuous tinnitus. His local physician pronounced it a bilious attack, and with cholagogues his dizziness subsided, and he had no further trouble for five weeks, when he had a similar though much milder attack, which was repeated the following week. He then sought the advice of a disciple of Salisbury, and was told that he was suffering with stomach disease. He was accordingly given the strict Salisbury diet, and reduced thirty-eight pounds in weight during the next five months. During this time he had six seizures similar to the last, never losing consciousness, but being often thrown suddenly to the ground, after which there was always nausea and often vomiting and more tinnitus. During all this time the noises in the head were continuous and sometimes much exaggerated at the time of the fall. The deafness though incomplete has never improved since the first seizure.

Aside from the weakness engendered by his effeminating diet he is comfortable during the intervals. No headache or visual disturbances. The physical examination reveals a pale, cadaveric-looking man of medium size, about twenty-five pounds under weight. Slight fibrillary twitchings about the face. No impairment of other cranial nerves except the left acousticus could be found. Arteries moderately sclerotic; heart weak but otherwise normal; lungs and abdominal organs normal; throat, eustachian tube, external auditory canal and tympanum normal. He never had middle-ear catarrh. No papillary changes.

You will all recognize the picture as classical of Meniere's disease. In 1861, Meniere first described this symptom-complex, and showed in his case at autopsy that it was due to disease of the labyrinth. He found a reddish plastic exudate into the labyrinth.

During the few years following his cases several other autopsies corroborated his view, and Fluorens found that he could produce the Meniere symptom experimentally by disturbance of the normal function of the labyrinth. Hillairet was the first to promulgate the idea that an isolated lesion of the acoustic nerve could cause the same symptom-complex, and Alt recently reported a case of leukemia with autopsy in which the trias was most marked. His patient was suddenly seized with noises in the head and vertigo, and fell to the floor losing consciousness. He became completely deaf in the left ear and the hearing was impaired in the right.

Professor Weichselbaum made the post-mortem and found leukemia myelo-lienale. Obersteiner found by microscopical examination numerous leukemic spots in the intramedullary course of the acousticus, and in both the lateral roots well-marked leukemic infiltrations; especially where the two roots come together, the round-cell infiltration was marked. The pia at this point was thickened and permeated with small cells, lymphocytes with well-stained nuclei. Slight infiltration was found in the region of the right acoustic. The fibres of the left nerve were atrophied slightly. The fourth separate nuclei of the eighth, the posterior tubercular quadrigemina, cerebellum and temporal lobe showed pathological change, and there was no lesion of other cranial nerves and no hemorrhage or trace of an old one. The labyrinth and middle ear were examined by Kaufmann and found normal. The finest changes in the end distributions of the eighth nerve could not be ruled out. This is the only case of Meniere's disease that I can find reported in which the autopsy showed a lesion of the *nerve trunk*, undoubtedly because the examination of the nerve in its entire course was omitted because a lesion was found in the labyrinth or in the adjacent brain tissue, abscesses, tumors, etc. Gruber, who has made a careful examination of one hundred cases, says that a secretory exudate into the labyrinth is much oftener found at autopsy than hemorrhage, and this explains why the disease is often met in alcoholics and divers, whose intracerebral pressure undergoes sudden and extensive changes, as well as in cerebral affections and in disease of the middle ear.

Meniere held that the disease which bears his name was an affection of the semicircular canals. We now know that these canals are concerned in equilibration and that the vestibular nerve supplying their ampullæ may be affected without the hearing being impaired. But the symptom-complex, as he observed it, must be due to an impairment of function of both the vestibular and cochlear nerves. Such impairment may originate within the internal ear or without.

Among the causes originating in the labyrinth are: labyrinthitis, syphilis, leukemia, anemia, hyperemia, extravasation, trauma, toxemia. *Causes without* are affections of the middle ear and wax in the external ear, on the one side, and disease of the nerve trunk and nuclei and meningitis, tumors, abscesses and diseases of the seventh and fifth nerves, on the other. And we occasionally see the trias occurring in hysteria and epilepsy in the form of an aura, and in migraine. The latter are termed by Gilles de la Tourette as pseudo-Meniere's disease, on account of the Meniere symptom occurring in so many different affections. Many authors have thought to drop the disease called Meniere's, but it is perhaps better to restrict Meniere's disease to vertigo and its accompaniments due to disease or injury of the labyrinth, and I shall ask your attention to the symptoms which such a lesion presents.

VERTIGO.

The vertigo shows the greatest variation in character. It may be paroxysmal or continuous. When continuous, it is usually slight in character and does not prevent the patient from walking about. There may, however, be intervals of apparent exacerbation when the vertigo becomes more marked and the patient is obliged to seize hold of an object to keep from falling. The attack may be excited by sudden turning or changing the position of the head, or by a paroxysm of coughing. On the other hand, the seizure comes on during sleep and awakens the patient. In other cases vertigo only appears during a paroxysm, and these paroxysms may recur at intervals of days, months or years. In other cases the vertigo is so severe and continuous as to compel the patient to remain in bed all the time, and to frequently have his position changed, as his dizziness is persistent even in the recumbent position, suggesting more affection of some one or two of the canals. Frank'l Hochwart suggests the name of "Status Menericus" for the severe form. The vertigo may be subjective, objective, or both. When the pa-

tient feels he is turning or falling, he usually turns or falls in the direction of the affected ear, and when both ears are affected, toward the one most affected. Combined with this lateral tendency there is often a strong inclination to go forward or backward. When external objects seem to move, it is most often in the direction of the subjective sensations though not always. These sudden, irresistible impulses to forward movement occasion the sensation in the patient so often described as that of being hurled and landed at a distance from the place of seizure. If the patient loses consciousness it is only for a moment, and in cases of intense subjective vertigo and sudden onset styled the apoplectic form. No dazed feeling follows the attack as in epilepsy, but the vertigo may continue for a few hours or longer. When severe it is generally followed by vomiting, pallor of countenance and cold sweat. After the stomach is emptied bile appears as usual, and this is regarded as sufficient proof of biliousness. Indigestion, of course, follows for a day or two.

Ocular symptoms are present in some cases reported by Gowers, Mendel and Mills. An increase of pressure in the labyrinth as well as firm pressure of the antitragus over the meatus may cause nystagmus, and one case of nystagmus is reported which lasted ten years after the affection was cured. In this case the labyrinthal disease was secondary to middle-ear affection. Diplopia has been reported as an occasional symptom, probably due to the nystagmus being unequal in the two eyes.

DEAFNESS.

Deafness is usually one-sided; is always present in some degree, but rarely ever complete, depending, of course, upon the degree of affection of the cochlear branch, or the amount of irritation which the cortical centre of hearing in the superior temporal convolution has received from the disease going on in the labyrinth. It is well to remember that cases reported by Frank'l Hochwart revealed at autopsy labyrinthal disease, without ever having had attacks of vertigo, and if the vestibular branch can escape, in all probability the cochlear trunk may at times escape, but then our symptom-complex would be incomplete.

TINNITUS.

Tinnitus assumes a great variety of forms, from a mere soft sighing or whistling to the puffing of a locomotive or the letting off of steam. It varies much in pitch and intensity, and does not assume the form of tunes or words. It may be very loud or rumbling, throbbing or beating in character, and may be synchronous with the heart's action.

Tunes and words are suggestive of cortical lesion, but patients falling asleep may often imagine they hear music and words, and it is possible that tinnitus may be the beginning of auditory hallucinations. The location of the morbid sound may be in the ear or in any other part of the brain. If both ears are involved it is heard in both and may be louder in one than in the other.

Tinnitus might be called a paresthesia of the nerve of hearing and may be due to noise within or without the labyrinth. Excessive stimulation of the acoustic causes it, as well as disease in the labyrinth, the nuclei in the medulla or in the cortical ganglia. This symptom, of course, renders the deafness marked and will never cease unless complete deafness occurs.

To make a diagnosis of Meniere's disease it is necessary, first, to rule out disease of the external and middle ear, remembering that the Meniere symptom-complex often occurs as a symptom of the latter, and that the two may co-exist. Second, to exclude brain lesions, meningitis, cerebral tumors, especially of the pons medulla cerebellum and posterior lobe of the cerebrum. The mind is undisturbed in uncomplicated Meniere's disease, and other cranial nerves, as a rule, escape or are only partially affected. There is no paresis of the extremities. The absence of headache is a marked symptom, while in the afore-mentioned cerebral affections some one or more of the above symptoms stamps the affection as extra labyrinthal. Frank'l Hochwart reports two cases in which the seventh nerve was completely paralyzed, but in these cases he thought the disease originated in the rupture of a small aneurism of a branch of the basilar artery. Mendel explains the occasional affections of some of the eye muscles in Meniere's disease, by the circulatory changes through disturbance of the internal auditory artery before it enters the internal auditory meatus, by changed pressure conditions of the cerebro-spinal fluid, including variations in the endolymph of the labyrinth and by simultaneous affections of the arteries of the eye muscles.

Perhaps Meniere's disease occurring in the apoplectic variety is most liable of being mistaken for encephalic apoplexy. But when we remember that the latter affection is common, while the former is rare, and find a diseased heart or atheromatous vessels with a hemiplegia, or our patient unconscious or in convulsions, we can with little difficulty rule out Meniere's disease.

Cerebellar affections often give us the same form of ataxia in the gait and vertigo, but we rarely have the tinnitus and deafness and we usually do have optic atrophy, or hemianopsia, headache and paresis of the extremities, with mental impairment.

Syphilis rarely affects the labyrinth first, but generally secondarily, through a basilar meningitis. It is a question if ever we get the Meniere symptom through a primary affection of the bulbar nuclei, as formerly believed, in an analogous way to that in which the nuclei of the third, fourth and sixth cranial nerves are so often invaded by syphilis. (Demonstration of nuclei.)

Hysteria and neurasthenia can be easily differentiated by their history and present stigmata.

PROGNOSIS.

The prognosis varies according to the cause. When due to acute inflammation or when in the apoplectic form the prognosis is very good. Kennefick reports a case illustrating the apoplectic form completely cured. As to the duration of life in all forms the prognosis is good. The paroxysmal form, if treated early, may recover, but rarely completely. Some disturbance of equilibrium usually persists, especially so long as the deafness remains incomplete, and the tinnitus, of course, is permanent. The hearing, except in the curable cases, does not improve, and yet rarely is absolutely lost.

TREATMENT.

Charcot and Raymond have advocated the intermittent use of quinine ten to fifteen grains per day for fifteen days; then wait eight days and repeat for several months. Gowers likes the salicyl compounds

better. The Germans use both together with galvanization and faradism.

When due to some constitutional affection, the remedies must be directed to the diathesis, and the iodides and nitro-glycerin may be efficient. When there is evidence of cortical excitement, bromide is indicated, and in the debilitated, arsenic is often of service.

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Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

(Concluded from No. 20, p. 493.)

REGULAR Clinical Meeting of the Medical Board, Friday, April 8, 1898, DR. C. B. PORTER in the chair.

DR. C. B. PORTER reported a case of

CARBUNCLE OF NECK.

Frank Brown, aged thirty-five years. Nine days ago, pimple appeared on back of patient's neck. This was poulticed three days without relief, then other pimples appeared about original one, while swelling and redness of neck increased.

Poultices continued till yesterday, when patient came to out-patient department for first time. Pain not extreme. Sleep has been disturbed for past nine nights from inability to get head into comfortable position. Appetite has been good — thinks he has had no fever.

Looks tired but not very ill. Back of neck much swollen so that neck in profile protrudes instead of receding. Just below hair is an area four inches broad transversely and two inches longitudinally, where the skin has sloughed in places. This is reddened, and pus can be expressed by gentle pressure from several small openings. Peroxide syringing followed by sterile water. Corrosive poultice 1–1,500.

February 4th. Temperature last night 104°, but good night, waking occasionally from pain. Slight extension toward left ear.

February 6th. Much more pus discharging. Transverse incision three inches long with scissors through centre of carbuncle. Poultice.

February 7th. One ounce of pus expressed this morning. Large amount of sloughing material cut away. Red surfaces beginning to show. Temperature still up at night.

February 9th. Operation by Dr. C. B. Porter, under Schleich Mixture. Semicircular incision with knife below carbuncle, at sufficient distance to include all sloughing tissue. Similar incision above. Thorough curettage of walls and base of area thus excavated about four inches in diameter. Wound cleansed with peroxide and again curetted; bleeding controlled by pressure; wound packed firmly with iodoform gauze; dry dressing.

February 10th. Packing changed; no extension.

February 12th. Few superficial sloughs trimmed off each day; temperature normal; patient has no pain.

February 16th. Clean granulating surface; edges pulled together with adhesive plaster; no subjective symptoms.

February 19th. Granulating surface growing smaller under strapping.

February 23d. Healthy granulating spot three by two inches ready for skin graft.

February 24th. Thiersch grafts from upper arm; Thomas collar.

March 2d. Dressing taken down; grafts adherent; surface well covered.

March 7th. Thiersch graft for remaining granulating surface.

March 11th. Only few grafts taken.

March 19th. Not much progress.

March 27th. In a stationary condition.

April 4th. Skin closing in steadily.

April 6th. Three very small granulating spots, everything else healed. Discharged relieved.

ADENO-CARCINOMA OF RECTUM.

DR. A. T. CABOT showed a specimen of adeno-carcinoma of the rectum. It was a cauliflower-like growth, as large as a small fist, with a rather narrow pedicle, and grew from the anterior rectal wall. The rectum was exposed by Kraske's method, the lower portion of the sacrum being removed, and the bowel was opened by a longitudinal incision in its posterior wall. The tumor was drawn out through this posterior opening, and its pedicle with the neighboring portion of the rectal wall was sewn through and through with a cobbler's stitch before the growth was cut off. In this way the rectal wall was closed and there was no hemorrhage. The tumor was situated over that part of the rectum covered by peritoneum. The method of stitching brought the peritoneal surfaces on the wall of the bowel snugly together and insured a satisfactory closure of the peritoneum by adhesion. The subsequent history of this patient was thoroughly satisfactory, convalescence being uninterrupted.

Dr. Cabot said that this was the third case in which he had removed a polypoid growth in this manner, always with satisfactory result. He preferred, when the operation involved the peritoneum, to leave the posterior incision open to prevent any fecal accumulation in the bowel while the wound in its wall was healing. This opening is readily closed later.

Dr. Cabot also showed the calculi from a case of recurrence of stone in the bladder which illustrated the fact that when stone in the bladder is constantly recurring after thoroughly done litholapaxies, one may pretty safely conclude that there must be some cause which is constantly acting to lead to the re-formation of stone. This patient was an old physician who had been operated upon in this hospital twice before by litholapaxy. His history was a curious one in that he used the catheter from the time he was twenty-five. During the Seven Days' Battle before Richmond and the long marches at that time he had to hold his water for a very long time, and when he finally tried to pass it he could not do so, and required the use of a catheter. The catheter was awkwardly passed, a good deal of

bleeding ensued, the bladder never recovered expulsive power, and he has had to use the catheter ever since. When he appeared with another stone this year, he was told that he had better have a suprapubic incision to find the cause of the repeated stone formation if possible and remove it. This was done and after the removal of a calculus that was loose in the bladder at first nothing more could be found to account for the frequent recurrence of stone. On close search, however, a small crumb of stone was felt upon the bladder wall which was found to be a little point of calcareous matter projecting from a pocket which contained quite a calculus. The neck of this little pocket was so narrow that it was with a good deal of difficulty the calcareous matter could be dug out after breaking it up.

This case emphasizes the importance in these cases of recurrence of stone of doing an operation which will enable you to make a thorough examination and remove the cause.

Another case that was in the wards at the same time further illustrated this point. The patient had had an obstructing prostate for a long time, and had not passed any urine through the urethra for nine years. The stones in this case were formed by incrustation upon a prominent third lobe which was removed by suprapubic incision and the patient went out of the hospital some four or five weeks later passing his urine naturally, having about two ounces of residual urine, which was a great advance over the previous condition when he could not pass any part of the urine. In answer to a question as to how the pocket was treated, Dr. Cabot said he curetted it with great care at the time of the operation to get the last bit of stone out, and then kept the suprapubic opening patent a longer time than usual, and finally putting a litholapaxy tube in through the urethra with a long glass tube carried down to the base of the bladder where the pocket was; a careful washing of that region was done to remove any crumbs of calcareous matter which might have settled back into the pocket.

Dr. Cabot also spoke of a case which illustrates the difficulty of diagnosis in appendicitis. The patient was a young Italian women who had always been in good health; was never jaundiced and had never suffered from pain in the abdomen except ten years ago when, after childbirth, she had what she called inflammation of the bowels. Her present difficulty began on a Sunday afternoon when she was seized with severe pain in the right iliac region. This was followed by vomiting and she shortly had a chill. She entered the hospital on the following Tuesday, at which time she was suffering much from pain in the abdomen, had a leucocytosis of 17,000, and was a very sick-looking woman, with dry mouth, scabs along the lips and coated tongue.

At the time of Dr. Cabot's arrival she was already prepared for operation and after satisfying himself that the greater part of the pain was in the right iliac region, she was etherized and the abdomen was opened along the linear semilunaris and a perfectly normal appendix was found. A few slight adhesions existed between the omentum and abdominal wall. Following this slight evidence of inflammation upward, the gall-bladder was found covered with adherent omentum and on separating this the surface of the gall-bladder was found to be discolored and on the point of sloughing through in one or two places. After walling the abdomen off with gauze the gall-bladder was opened and a gall-stone which lay free in its cavity was removed. It was then found that another gall-stone was fixed in the cystic duct beyond the gall-bladder. After trying in vain for a considerable time to remove this through the gall-bladder, incision was made in the duct externally and the stone was removed. A drainage tube was put in the gall-bladder and gauze packed over the opening in the duct which was too deeply situated to be sutured without a great and, in the patient's condition, a dangerous prolongation of the operation.

In this case the history did not point to gall-stones, but had the patient been under observation for a longer time the diagnosis could have been made by the examintion of the urine, which it was afterwards learned from the nurse was of a dark coffee color. Dr. Cabot said that in other cases in which he had been puzzled by a similar condition, the urine had afforded the proper solution of the question. The subsequent history of the patient was thoroughly satisfactory, the woman having made a good recovery.

DR. WARREN: The case of hernia reminds me of a case I had many years ago. The patient said she had no hernia one day and the next had a hernia about one-half the size of the one shown in the photograph, and certain symptoms made it seem as if it might be strangulated. I operated and found a large thickened hydrocele of the cord extending down into the labium. Her physician declared that this had formed within twenty-four to forty-eight hours. It is worth mentioning from point of view of differential diagnosis.

In regard to the operations for aneurism I think now we have so perfect command of the asepsis of the limb we have got to revise all the old rules about operating for aneurism. Hunter's method of making a cut at the apex of Scarpa's triangle and tying the femoral, of course was a very good substitute for the old operation which was laying open the tumor and getting out the clot, which involved a great deal of suppuration and sepsis. But the danger of Hunter's operation lies in the circulation of the foot. I don't see why under present conditions of asepsis we should leave a large disorganized mass in the limb which must remain a source of peril to the patient afterwards. My experience has been that in elderly people with diseased arteries when we attack the main vessel we put the life of the limb in great jeopardy, and when the limb does not become gangrenous it is apt to be useless afterwards. In one case in which I finally amputated for neuralgia and generally disability of the limb I found posterior tibial muscles in a state of fatty degeneration. Therefore I believe in this local operation for gangrene.

In a case operated upon this winter in a young man for traumatic aneurism I excised the whole sac in the femoral region and got union by first intention without the least trouble. I think in these long-standing aneurisms we get a certain amount of collateral circulation which helps us out if we give the collateral circulation a good chance by excision of the sac and removal of pressure.

CEREBRO-SPINAL MENINGITIS.

DR. CUTLER: In this small boy sent in the other day we made the diagnosis of cerebro-spinal meningitis. Dr. C. F. Folsom told me some time ago that in the early stages of cerebro-spinal meningitis he obtained great benefit from the free use of ergot. This boy

came in with high fever and a great deal of pain in the front and top of his head and back of the neck, retracted head and pain in the left side of his chest. He had retracted stiff neck and could be lifted by putting the hand under the head, lifted right up as if he were a block of wood. He had internal strabismus of the right eye of two days' duration, and the eye you see still is not quite right. He was delirious and had been so for a few hours; he could be roused a little, but not much. He received quite large doses of ergot every hour for the first day, and he materially improved so that he became somewhat better. I increased the dose during the second and third days and by that time he got decidedly better and his temperature took the drop shown in the temperature chart. He had a leucocytosis of about 23,000. That, however, rapidly disappeared and the boy is now practically well. Another case I had in the hospital earlier in the season, I think in the month of September, came in also at an early stage of the disease, and he became comatose while we had him under observation the first twenty-four hours. We thought he might as well die from ergot as anything else and we gave him large doses. He commenced to get better, and the next day was very much better, and by three days later was practically well. Doubtless many of the gentlemen have seen him. He is a waiter at Marliave's restaurant.

To this boy we gave ten minims of the fluid extract once an hour. This boy had none of the skin eruptions you sometimes see in cerebro-spinal meningitis nor did he have herpes.

Afterwards we had another case which presented these same symptoms. He did have herpes and was beginning to have strabismus. His case had been of two or three days' longer duration than this boy's. It was rather late to begin the treatment, but as a control experiment we gave ergot to him. It did not do him the slightest good. A post-mortem was performed and the diagnosis was found to be correct.

I have a patient, a laboring man in a hide factory, who shows an epigastric hernia. It is very small, right up in upper part of the epigastrium, and exquisitely tender. He complains of a great deal of pain in the epigastrium and inability to do his work. He finds he is chiefly disturbed when he leans over; he cannot pick up anything it hurts him so. When you put him down on his side and make him bring his head and knees together you find that the hernia comes out. If you make him cough or make a straining effort it does not appear, but make him lie down on the floor and bring himself together, it comes out. He has no trouble with his digestion as many of these patients do have.

I also want to show a culture of the bacillus mallei made by Mr. Oscar Richardson of the pathological laboratory for me in a case I saw in consultation the last part of December. I was asked to go out into the country and bring materials for doing something to the pleura. I went out and the first thing I saw was a man who, to be sure, was breathing rather rapidly, but had a most striking eruption on the face, sort of tubercle affairs about the size of the end of the little finger or the size of the end of the thumb. These were on a red base, elastic to the feel and many of them capped by a suppurating sort of a sac which suggests either a very queer kind of chicken-pox or some sort of bastard or queer kind of small-pox. He did not look like a small-pox patient, and these things were irregular in their outline and shape and had solid contents and red contents and suppurating places and my attention was taken away from the pleural sac and directed towards the eruption. He evidently was suffering from some pyemic condition, and I could think of nothing else than glanders. I got some of the pus and brought it into the hospital and Mr. Richardson made a culture of it. That is a photograph of the pus. I made the diagnosis, and for a few days in the laboratory it seemed uncertain whether that was glanders or not. They finally injected some of this material into a male guinea-pig, and he died from glanders within a week. I made the diagnosis before I left because I could not see what else it could be. I looked into the throat because the man was having some difficulty in breathing, and saw a queer looking thing. It looked as if a person had taken a syringe loaded full of melted paraffine and squirted into his throat the paraffine, and it had adhered in drops all around, and had done nothing except stay there. It was mother-of-pearl color, no redness underneath it. I did not have even a knitting needle to cut anything away with and my time was limited. I saw a portion adherent to the uvula which hung down. I should say there was a piece of this material which looked very much like something which lay on the outside, as if it were an exudative, fibrinous mass. I looked into his nose, no redness, no discharge, no odor. He had stenosis of the trachea or larynx, and there was no breaking down. What this thing was I did not know. I presume it was something which was caused by the low organism of glanders and it had not commenced to soften, but the man had a fever which was up and down as you see it in pyemia, swollen joints and reddened joints and an eruption over him which very rapidly increased. This man died on the sixteenth day. It was found there had been a case of glanders in the stable where this man worked a year and a half ago. There was no local lesion that could be determined, and apparently he had something which attacked him first in his lung. It was apparently one of the inhalation forms.

Dr. Putnam: I cannot help expressing profound scepticism as to the effect of ergot. I should like to know whether there is any satisfactory theory as to its action?

Dr. Cutler: In reply to Dr. Putnam's second question, it seemed as if the child grew better pretty suddenly, and that was true also in the case of the man who was getting worse and we thought he might as well die of ergot as anything else. He is alive and well now. Dr. Folsom's notion was that it diminished the amount of blood in the brain, diminished congestion. He recommended the drug only during the early stages, the stage of congestion. I do not see what effect it would have on the low organism I am sure, unless by a great contraction of the arterioles it cut off its nutrition, and, so to speak, starved it.

Dr. Rotch: I would like to mention another case supposed to be cerebro-spinal meningitis in a child under my care where the symptoms were very obscure, and did not point towards any special disease and where the value of lumbar puncture seemed to be very marked. The only sympton was great ranges in temperature, and yet no retraction of the head or any special symptoms pointing to cerebro-spinal meningitis. The blood was carefully examined for malaria and finally lumbar puncture was made and the organism found. Subse-

quently it followed more the course of cerebro-spinal meningitis.

DR. WALTON: It occurs to me, Mr. President, that these cases of rapid onset with marked symptoms giving way to rapid improvement are perhaps cases of the *serous* meningitis described by Quincke. Apparently there have been a number of these in this epidemic; they may be characterized by opisthotonos, strabismus, stupor running into coma, and fairly high fever, yet within three or four days the symptoms may rapidly subside and within a week the patient be practically well. The fact that ergot failed to work in the case on which the autopsy was made and cerebro-spinal meningitis established, would rather tend to show that the cases belonged to a different category, though it is not safe to draw conclusions on such meagre therapeutic data; apart from the question of susceptibility to treatment, a rapid convalescence should perhaps always suggest the serous form of meningitis.

DR. WARREN: These tumors, described by Dr. Coolidge, have interested me a long time. I remember seeing Langenbeck operate on one in 1869 by osteoplastic resection of the upper jaw and calling attention to their existence in young males almost exclusively. I had an opportunity finally to operate, but when the opportunity came I decided to adopt R. P. Lincoln's method, which is practically what Dr. Coolidge has described, only it was done with galvano-cautery wire. The tumor bled very extensively and the patient was very anemic, and that seems to be the danger of these sarcomatous growths; even the fibromata are very vascular. This was successfully removed in this way and had those anatomical peculiarities. Dr. Hooper for years afterwards semi-annually removed a bottle of adenoid or sarcomatous tissue from the vault of the pharynx, and finally one day I suggested that it might be necessary to do Langenbeck's operation, but he had then passed the age of twenty-one and some growth which had been found had recently disappeared. Dr. Lincoln, I think, calls attention to the fact that if these patients can be kept in good condition until the bones have ossified then these processes subside. I had a similar experience with another case in which I performed an osteoplastic resection; later several operations were performed by other surgeons. I sent for the patient several years afterwards and meantime he had reached adult age, and for the last six months the growth had been rapidly disappearing.

DR. LANGMAID: Ordinarily a myxomatous growth does not bleed unless it is snared or pulled out, but you cannot touch one of these sarcomatous growths — it is a point of diagnosis — without getting almost immediately some prune-juice colored exudate. Whenever that occurs a brisk hemorrhage is likely to follow attempts at removal.

DR. ROTCH: I have a few words to say about Dr. Coolidge's interesting case of escape of cerebro-spinal fluid through the nose. It is interesting in reference to the different stages of development in the early periods of life either in the weak places which may exist in young children's skulls or such openings as the petro-squamosal suture which is such a source of danger to young children until it has closed. These cases of escape of fluid should be put on record.

I wish to speak in reference to a case of apparent loss of cerebro-spinal fluid, sudden and in large amount. I saw the case with Dr. Broughton of Jamaica Plain. I did not know this case was to be reported by Dr. Coolidge and therefore I am not prepared to give all the details. The infant was healthy at birth and had a seemingly perfectly formed head. At about the fourth or fifth month something happened in the night. In the morning the pillow was found wet. No examination of the fluid could be made. The fluid evidently escaped from its brain. In the morning the head was collapsed and it had become microcephalic and evidently idiotic. I believe it is still unproved how this fluid gets through and therefore this case of Dr. Coolidge's is very interesting showing how it can come. The child is an idiot to-day. There were no symptoms of meningitis. It is possible the child had a malformed brain and that the normal shape of the head was due to distention by fluid.

DR. WALTON: The objection has been urged to the possibility of cerebro-spinal fluid escaping in this way, that in case there was an opening into the cranial cavity the danger of infection would be so great that meningitis would supervene. It seems to me, however, there is enough evidence pointing to the cerebro-spinal origin of this fluid to counteract this objection, and in point of fact a local meningitis at the base did occur in the one other case coming under my observation, the lesion being limited to the region of the optic commissure and producing optic neuritis and blindness. Tilleau reported two cases identical in symptoms with this case of Dr. Coolidge, and was satisfied that the fluid was cerebro-spinal. When the patients were upright or recumbent no fluid escaped, but as soon as the head was bent forward there was a steady escape as long as the head remained in that position. One of these patients was an adult, the other a child. In both trauma had taken place and Tilleau fancied that fracture of the cribriform plate had taken place. This theory does not seem quite satisfactory, and it occurred to Dr. Brooks and myself on looking up the subject in connection with the case I have mentioned, that in all these cases there is perhaps a developmental defect leaving an abnormal opening between the brain and the naso-pharynx, an idea which Dr. Rotch's case would certainly tend to favor. Why the symptoms should first appear in later life in this event, it is a little hard to understand, but I suppose it is not impossible that such changes should take place in the soft parts, either after trauma, or as a result of inflammation, as to open up a passage previously closed. Change in position must mean one of two things, either that the flow had taken place constantly, but while the patient is erect he swallows the slowly-collecting fluid, whereas when he bends forward the fluid follows the line of least resistance and passes directly out through the nose, or the fluid is not always running, but there is a valve-like action of the soft parts in some way altered by bending the head forward.

CURE FOR MILITARY NOSTALGIA. — Dr. Harrison, a colored physician of Wichita, Kan., has received from a member of one of the colored regiments in Cuba a letter stating that many of his comrades have forgotten home and former heart ties sufficiently to fall in love with and marry Cuban and half-breed Spanish girls. This letter has caused consternation among the colored women of Wichita who had husbands or sweethearts among these troops. — *Medical News.*

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D. AND W. D. HALL, M.D.

(Concluded from No. 20, p. 496.)

HEMIANOPIA, WITH ESPECIAL REFERENCE TO ITS TRANSIENT VARIETIES.

WILFRED HARRIS's [1] interesting and important contribution was originally intended to deal with several extraordinary cases of transient hemianopia associated with unilateral convulsions, such cases going far to prove a theory of cortical representation of the macula and that the macula is innervated on the same plan as the rest of the retina. He was led to extend the original title of the paper by the close analogy which such cases bear to epilepsy on the one hand and migraine on the other and by the association of hallucinations in the blind field with hemianopia. His conclusions are: (1) Hemianopia, rarely binasal, more commonly lateral and left sides, with accompanying restriction of the remaining half-fields, may occur as a temporary phenomenon in hysteria. (2) Hemianopia due to a vascular lesion of the cuneus, of sudden onset, may commence with a marked loss of sight, sometimes amounting to complete amaurosis, and due probably to inhibition of the remaining half-vision centre. (3) The cortical half-vision centres are not subdivided into centres for color, light and form respectively and hemichromatopsia may be due to a lesion anywhere in the visual path between the chiasm and the cortex. (4) Quadrantic hemianopia though strongly suggestive of a cortical lesion may sometimes be due to a lesion of the internal capsule. (5) The macular region of the retina is supplied with nerve-fibres on the same plan as the rest of the retina, that is, each side of it from the corresponding side of the brain. In all cases of absolute transient hemianopia the dividing line between the blind and seeing halves passes through the fixation point. (6) The cortical centre for the macula region in each cuneus is less liable to complete destruction and recovers earlier than the rest of the half-vision centre. (7) Cases of persistent hemianopia in which the dividing line passes to one side of the fixation point, leaving it in the second half, are to be accounted for either (*a*) by the escape or partial recovery of the cortical centre of the macula, or (*b*) by the acquirement by education of a new fixation point in the retina. (8) Hemianopic visual spectra of low elaboration, such as red or green lights, or the varieties of scintillating scotoma in migraine, are caused by a discharge in the half-vision centre in the cuneus. (9) Complex visual phenomena of hemianopic type, such as faces, animals, etc., are elaborated in a still higher visual centre, which possibly is in the angular gyrus; their occurrence in the half-field only being due to reflex irritation from a lesion generally in or near the cuneus, but which may be in the optic radiations or optic tract. (10) Double hemianopia does not necessarily cause permanent amaurosis, in many cases the return of a small area of central vision indicating the escape or recovery of the cortical centre of the macula in the cuneus on each side. (11) The hemianopia of migraine is due to an epileptic discharge in the half-vision centre of one side. (12) In many cases an epileptic discharge may originate in or near the half-vision centre on one side, in some cases proceeding no further beyond producing temporary hemianopia, in others producing a typical epileptic fit, and again in others giving rise to unilateral convulsions without loss of consciousness. (13) Transient hemianopia in such attacks may last for twenty-four hours or longer, and may be due to vascular softening adjacent to but not involving the visual centre or path. (14) Transient hemianopia is rare in ordinary Jacksonian epilepsy, and is not liable to occur unless the half-vision centre be (*a*) already slightly damaged, or (*b*) hypersensitive and prone to spontaneous discharge as in migraine. (15) Such transient hemianopia not unfrequently accompanies unilateral convulsions in general paralysis, and may possibly occur in uræmia. (16) The auditory centre may be similarly paralyzed through spread of the epileptic discharge.

[1] Brain, Part lxxix, Autumn, 1897.

THE INFLUENCE OF MYDRIATICS AND MYOTICS UPON THE GLAUCOMATOUS EYE.

A recent paper of Jackson's [2] serves as the basis for the following conclusions: although mydriatics should not generally be applied to eyes which are on the verge of glaucoma still the risk should not be guarded against by the fixing of a definite age-limit before which it is safe and after which it is not safe to use them. If an attack should supervene an iridectomy should be done immediately as he considers the results as even better than in those cases in which the iridectomy has been done in cases which have started up spontaneously. He would even in doubtful cases use homatropine as a test after having carefully explained to the patient. If the iridectomy has been refused use eserine and if possible tap the anterior chamber in those cases where the mydriatic has a longer effect than homatropine. Where the synechiæ are so strong and extensive that there can be no obliteration of the angle, and especially if eserine causes irritation, atropine may be used with benefit. Myotics are only of benefit in the earlier stages of the disease and where the pupil is movable; otherwise they do harm. If an iridectomy cannot be done the myotics may be depended on as long as they do good, but the time will come in the majority of cases when after their use the effect is less favorable, as shown by falling off in central vision or the field, and from that time on their continuance is of little use.

[2] American Journal of Medical Science, April, 1898.

SEPARATION OF THE RETINA.

Horstmann [3] in thirty-five cases of separation of the retina had complete recovery of sight in five. He concludes that every case of spontaneous detachment is due to disease of the uveal tract, and is brought about by transudation of fluid from blood-vessels which afterwards passes beneath the retina. Spontaneous cures were only observed in those cases in which the retina had retained the perception of light, and in which the subretinal exudate had not become absorbed; neither was the detached portion torn nor was there alteration in the interocular tension. In cases where the detached portion resumed its normal condition but remained functionless, the subretinal exudate became absorbed but there was no tear or diminution in the tension. Prognosis very grave in cases of tear asso-

[3] Archiv. f. Augenhkde., xxiv.

ciated with minus tension. All operations are useless, the least harmful being scleral puncture.

SYPHILITIC DISEASES OF THE EYE AND ITS APPENDAGES.

Mr. Henry Juler [15] during one of the Harveian lectures for 1897, made the following statements regarding chancre of the eyelid and its differential diagnosis. The pre-auricular gland is always enlarged, firm and painless and not tender on pressure. This absence of tenderness has a diagnostic significance. The condition may be mistaken for rodent ulcer, epithelioma, lupus, chalazion, hordeolum and tuberculous ulcer of the palpebral conjunctiva. Chancre of the eyelid is always accompanied by enlargement and induration of the pre-auricular or submaxillary gland, usually both; the absence therefore of glandular enlargement will exclude probably rodent ulcer, tertiary syphilitic ulcer, lupus and in most cases chalazion and hordeolum. By the time that an epithelioma had progressed far enough to cause glandular enlargement, a syphilitic primary lesion would have healed and secondary symptoms would have appeared. Swollen glands accompanying extensive chalazia are tender and by other appearances indicate acute lymphadenitis. The pre-auricular gland which accompanies the tuberculous ulcer is firm and swollen and the ulcer is round or oval and saucer-shaped but without induration of the base.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, May 4, 1898, DR. H. L. BURRELL in the chair.

DR. C. B. PORTER read a paper entitled

SOME CONSIDERATIONS ON THE TREATMENT OF FECAL FISTULA AND ARTIFICIAL ANUS.[1]

DR. J. HOMANS: I have nothing to say except to express my admiration of Dr. Porter's skill and success. I will add that I never feel sure of my catgut. Lately I have been using a catgut sealed up in bottles, and this is no more reliable than many of the others. I have lately had two wounds suppurate the whole length. I have better success with silk than with catgut.

DR. E. W. CUSHING: I think this is a very admirable paper and a subject of really very great interest. With the amount of abdominal surgery that is being done now, there are bound to be a good many fecal fistulæ. In some cases it is almost inevitable. Fortunately, most of them heal readily. If the fistula is low down there is one point worth speaking of. Keeping the fistula clear can be done best by injections, passing water up through the rectum or by washing down from above through the fistula. Experience has shown that washing down from above is the best way, the fluid washing whatever there is in the fistula down into the bowel. It seems to be pretty important after the fistula begins to close to get out the last remnants of fecal matter several times a day. The only cases I have seen which could not be closed were tuberculous, but in old cases I have several times had to do an operation similar to that the reader described. I should dissent a little from the theory that fistulæ are often caused by properly handled glass drainage-tubes. If the drainage-tube is pulled out a little and turned a little, it is hard to see how it should stay long pressing on the intestine. I think in most of those cases there has been some injury to the intestine first. I have not that faith in gauze drainage that some have. I should not feel ready to give up the glass. I strongly believe that catgut will do everything that is necessary to be done in the abdominal cavity unless in some cases a fine silk is used for suturing the intestine. I have not used anything else in ten years in the abdominal cavity unless, perhaps, some very fine silk. I have seen many cases where silk has resulted in fistula, where a knot is found at the bottom of the trouble, where you have to go down one, two or three inches to find at the bottom communication with the intestine and a knot of silk responsible for the whole trouble.

DR. ELLIOT: I hope the Society realize that Dr. Porter is really a pioneer in this branch of surgery. The first operation I ever saw is the one he has reported as being done in 1879 when I was in the Medical School. Of course, the operation of fecal fistula had been theoretically known about, but I do not think it had been successfully done anywhere to any great extent and certainly not here. He led the way, and whatever I have done in this line my first inspiration was derived from Dr. Porter; seeing him operate successfully encouraged me to try it, and I am very glad to acknowledge his leadership in this matter.

I have used glass drainage-tubes a great deal and never had a fistula from them. I think that if the glass drainage-tube has nothing binding it down it cannot do any harm. On the other hand, I have been told of gauze packing making a hole in the intestine. Operating for the spur as represented in those pictures has gone by, also, I think, that trying to close a fistula without freeing the gut has gone by, and I was surprised to receive a pamphlet from Dr. Senn, within a year and a half, describing a method of dissecting up a flap and closing the fistula without opening the peritoneal cavity. My experience is contrary to that. I believe the essential thing in making these operations a success is to get the intestine entirely free and to unite smooth peritoneal surfaces. If you leave the intestine binding or not perfectly free the tension will make the stitches irritate or cause a stricture or bend of bowel which will be apt to make the operation a failure.

I have done six cases myself; all have been cured.

The most frequent cause is neglected appendicitis where the abscess has been allowed to burrow round behind the cecum. Usually the holes are found in the cecum. I am not disposed to think it is wholly neglected cases, as there is no reason why a gangrenous appendix should not leave a hole in the cecum. Of course, any one is liable to fecal fistula after appendicitis operation. Sometimes they close and sometimes they do not. It is not necessarily any fault of the operator.

DR. M. H. RICHARDSON read a paper on

CASES OF INTESTINAL SURGERY.

DR. HOMANS: That last remark of Dr. Richardson's is extremely striking and true. I have had a number

[1] See page 509 of the Journal.

[15] The Lancet, December 11, 1897.

of cases of excision of the bowel for stricture or making an artificial anus where the person has been in perfect health, well nourished, with no symptom until the sudden one of complete obstruction comes on, and at the operation a probe will hardly pass through the strictured bowel. This generally occurs in the large intestine.

DR. ELLIOT: Dr. Richardson believes that his cases recovered because he used drainage. He states that he had seven fecal fistulæ with one death. I have had six cases without any deaths. Half of mine were drained because they were septic; the other half were sewed up tight and they all recovered. Dr. Richardson presupposes that if his had not been drained his cases would not have recovered. I presuppose that they would have recovered. I have done about twenty resections of the bowel for various diseases and only one death can be attributed to a leak at the point of union; in that case I used a Murphy button which turned out to be mechanically out of order. Death followed the operation. I do not think that the case would have done well if I had had a piece of gauze around the button, yet drainage would have been better in this case. The objection to putting gauze around every resection is that, in the first place, you cannot close the abdomen and you have a weakened wound and liability to hernia. In the second place, you prevent the peritoneal gluing process which would make a perfect union in a very short time. I do not believe myself that a very slight leak between the stitches causes death. I think it probably causes a gluing and I think that the gluing takes place very rapidly. It is easy to sew intestine, the difficulties have been greatly exaggerated. The first intestine I ever sewed united beautifully. I always take great pains to make a tight joint. I think it is much easier to do than one thinks, otherwise we should not have such a long roll of recoveries. In one case of fecal fistula where I packed with gauze I am sure the gauze made the stitch irritate, and it had to be taken out and made a leak which was closed at a later operation. It is the only leak I ever had in intestinal fistula. If I had not packed with gauze I do not think I should have had the leak.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

FIFTEENTH ANNUAL MEETING HELD AT MAPLEWOOD IN THE WHITE MOUNTAINS, NEW HAMPSHIRE, AUGUST 31 AND SEPTEMBER 1, 1898.

(Concluded from No. 20, p. 501.)

DR. JUDSON DALAND, of Philadelphia, read an account of a case of

DISSECTING ANEURISM OF THE THORACIC AORTA RUPTURING INTO THE PERICARDIAL SAC AND CAUSING DEATH.

The rarity and completeness of the lesion, the evidences of complete repair of a similar lesion above the former one, the extraordinary changes in the heart and aortic valves, together with the unusual mode of death, made it noteworthy. The specimens were exhibited. The patient was a man of forty-three years, denying syphilis and rheumatism, but decidedly alcoholic, drinking, on an average, two pints of whiskey daily and frequently half a gallon. He had edema of the legs and two per cent. of albumin in his urine, with hyaline tube casts. He had severe headaches. Examination showed marked arterio-capillary fibrosis, left hypertrophy of the heart and a faint systolic murmur was heard at the apex and transmitted into the axilla. He suddenly developed left hydrothorax, dyspnea and cyanosis; these symptoms were relieved by thoracentesis. He died of cardiac failure.

At the autopsy the pericardium was found to contain more than a pint of blood. The heart and a portion of the arch of the aorta after preservation in alcohol weighed two pounds. The left ventricular cavity was greatly dilated. One quarter of an inch above the free edge of the aortic valves there are evidences of complete rupture through the intima and a portion of the media involving the entire circumference of the artery. The edges of the rupture had been agglutinated by adhesive inflammation and complete healing had been effected probably for several years.

Immediately above this at a distance of half an inch there was a similar but recent rupture, having the appearance of having been cut with a knife. The blood had dissected between the coats of the aorta. Another opening above this communicated with the pericardial sac and was the immediate cause of death.

Discussed by Dr. Jacobi, Dr. Curtin, Dr. Musser and Dr. Quimby.

DR. J. EDWIN STUBBERT, of Liberty, N. Y., read a paper based on

SOME STATISTICS OF SERO-THERAPY IN TUBERCULOSIS,

derived from eighty-two cases. After referring to the history of the use of antitubercle serum and its theory of action and mode of preparation, he stated that the experimental results obtained lead undoubtedly to the conclusion that the treatment with antitoxic serum is still in the experimental stage, and should as yet be used only in sanitariums and under the best conditions. "We are on the road to success in this disease and nearer the goal than ever before." The serum used by the author was placed in his hands by Dr. de Schweinitz, director of the Biochemic Laboratory of the U. S. Bureau of Animal Industry at Washington, D. C. It was, therefore, manufactured by the Government, and was to be used for scientific purposes only. Other serums were used in a few cases. Dr. Stubbert believes that the antitubercle serum would seem to be contraindicated in the third stage of pulmonary tuberculosis; also in cases of marked mixed infection. Maragliano claims, however, that the use of antitubercle serum is indicated in all cases and in all stages. The author referred to some unpleasant symptoms following the injection but did not find them dangerous. In one case only was there syncope. The advantages are (1) this method does not tax the functions of digestion or produce gastritis, diarrhea or loss of appetite; (2) the bacilli have disappeared in cases where the sputa were still present; (3) up to the present time in his experience no relapses have occurred. The length of time that the serum can be given advantageously would seem to be about six or seven months.

In cases complicated with the streptococcic infection Dr. Stubbert used Pasteur's antistreptococcic serum, believing that if the secondary infection could be neutralized a clear field would be left for the action of the antitubercle serum. Six cases of this class were de-

scribed. The author found that the streptococci decrease very greatly or disappear entirely after the second injection. The largest number of injections given in this class was four. In the total of 82 cases the expectoration decreased in 82 per cent. The appetite improved in 81 per cent. Weight was gained in 78 per cent. Physical signs improved in 78 per cent. Temperature decreased in 49 per cent. Bacilli disappeared in 13 per cent. and decreased in 35 per cent. Cough decreased in 79 per cent. Apparent immunity established in 21 per cent. Generally improved, 78 per cent.

Dr. Stubbert is not yet a thorough convert to serotherapy in the treatment of tuberculosis, but believes that these investigations are along the right line, and that this line of treatment, on the whole, is more satisfactory than treatment by any one drug. But as yet we have found no specific.

DR. W. D. ROBINSON, of Philadelphia, in discussing Dr. Stubbert's paper, said: I have used sero-therapy in four cases, and have found the local irritation and often suppuration a means of great interference. In one case of laryngeal ulceration the ulceration did seem to be modified by the treatment. Dr. Von Ruck has stated that he has had quite as satisfactory results when the rectum had been used, after being thoroughly cleansed, for the administration of the antitubercle serum.

DR. HART, of Colorado Springs, in discussing Dr. Stubbert's paper, said: I should like to ask the Doctor if he has had any experiments on laryngeal cases and found any results from the use of the serum.

DR. GLENTWORTH BUTLER, of New York, said: This whole subject is certainly one of extreme interest, but it seems to me it will be very difficult to come to any satisfactory conclusion, partly because of the large number of preparations of this kind that have been offered. I think there are at least twelve, possibly more, varieties of serum which have been offered for the purpose and evidently it will require a vast number of observations. My present experience with the serum has been rather like that of many practitioners, very slight. I have used mainly because of the urgency of friends the Paquin serum. I had a rather curious experience with oxytuberculin (Hirsch): a case in the hospital had been taken ill with symptoms of broncho-pneumonia. In the course of two and a half weeks the temperature went down to normal in the morning, and ran up to 103° in the afternoon. An examination of the sputum revealed tubercle bacilli in large numbers. One of my philanthropic patients who had lost a daughter by this disease was very anxious to have the oxytuberculin tried. The effect was really remarkable for the better. Inside of ten days the temperature had fallen to 101° in the evening and in ten days further the temperature was normal. The patient left the hospital and has remained perfectly well. A second case gave nearly as good results, although it has passed out of observation and I do not know the subsequent history.

One word in regard to the antistreptococcic serum. I have to say that in several streptococcic cases, notably in streptococcic pneumonia, that in four out of five cases the results have certainly been satisfactory in bringing down the temperature and apparently contributing to the recovery of the patient. At the same time on the surgical side of the Methodist Hospital it has proven of extreme value in many cases of deep-seated suppuration and streptococcic infection. The preparation used was that made by Parke, Davis & Co.

DR. E. R. BALDWIN said: We have devoted more time to laboratory study of the serums than to the clinical, and it is really unfair for me to make any statement which would either favor or disparage whatever may be the value of the various serums. Dr. E. A. de Schweinitz has been very kind to send us some of his serums and our experimental results have been published recently by Dr. Trudeau and myself. We jointly wrote a paper which appeared before the Association of American Physicians. The clinical use of the serum has been very limited in the sanitarium Dr. Stubbert referred to a case which Dr. Janeway mentioned; I have a recollection of that case as being a febrile one and it did seem to reduce the fever. The reason that we do not use the serum more is that we have not reached the point in the laboratory studies that has given us a great deal of encouragement. It is nevertheless true that possibly results on human beings may be better than on the lower animals. We would at least expect to prolong the lives of guinea-pigs. I believe that Dr. de Schweinitz has some evidence to that effect. We have not as yet seen any published details of his recent work.

DR. HINSDALE reported upon two cases treated with the serum successfully remaining well at the end of a year and a year and a half. One case had fifty injections of the serum without unpleasant effect.

DR. J. E. STUBBERT, in closing the discussion of his paper, said: Replying to the question asked by Dr. Hart in reference to the treatment of the laryngeal cases I will ask Dr. Chappell to make a statement in regard to that department. I will simply preface what he may say by speaking of the lung condition in such cases. One case had a localized process of the right lung. The process was undoubtedly arrested. This case had rather severe laryngeal complication.

As to the question of sore backs: when massage is given afterwards we have no difficulty whatever in the administration of the antitubercule serum. However, I cannot recommend the use of oxygen tuberculin. The "Round Robins" issued at Santiago were nothing to letters I received in my office from patients whose backs were made sore by its use. Until the discussion of the paper was on I did not mention any particular case. There are plenty of cases in which we have bad results. One patient, a young lady who came to me and remained about seven months, with a slight process of the right apex, never received a dose of medicine other than antitubercle serum. She gained twenty pounds and is living at present in Summit, N. J. The most encouraging case was that of a girl who gained forty pounds in four months. The tubercle bacilli disappeared in three months. She has now been at work in New York City as a telephone girl, living in a district of the lower class of flats with a family in moderate circumstances, something like fifteen months, and has been working every day. Of these forty pounds she lost seven, which left her considerably above her average weight. Another patient gained something over ten pounds. He was in the Sanitarium perhaps four months. The day before he left he walked twenty-five miles without having any untoward symptoms, and has been working in New York City without any return of the disease.

Regarding the use of this serum in other places: in

New York it has been used by Dr. S. S. Jones in three cases. In one case the disease was checked and the patient kept alive. He said he was going to have a good time, and he died suddenly with a large hemorrhage. Dr. Jones told me the disease had remained in abeyance as far as he could tell. Another patient lost the tubercle bacilli in New York under the use of tubercle serum. I saw him three or four days ago and his lungs are normal.

DR. WALTER F. CHAPPELL, of New York, in discussing this paper, said: I have never personally given an injection of serum, but have had an opportunity during the past year to watch the cases of laryngeal tuberculosis treated at the Loomis Sanitarium at Liberty. I make trips about once a month and look at the cases and watch their progress. The percentage of favorable results obtained in the Sanitarium within the last year exceed everything I have seen before. To be sure, they have had the best possible food and surroundings, and at the Loomis Sanitarium they have been doing everything they could to help in the local treatment by properly selected medication, and while I think the serum may possibly have had some effect on the laryngeal lesions, I am not prepared to say that it has, but the results have been very good; whether from the treatment or general surroundings, I am not able to say.

DR. ROLAND G. CURTIN, of Philadelphia, read a paper on the

INFLUENCE OF RESPIRATION ON THE ACTION OF THE HEART IN HEALTH AND DISEASE.

Discussed by Dr. Judson Daland, Dr. A. Jacobi, Dr. Beverley Robinson and Dr. Frank S. Johnson.

Dr. GUY HINSDALE, of Philadelphia, read a paper on

THE DISTRIBUTION OF PULMONARY TUBERCULOSIS IN NEW JERSEY,

illustrated by a map and discussed by Dr. James B. Walker, Dr. Glentworth R. Butler and Dr. Charles E. Quimby.

DR. E. R. BALDWIN read a paper entitled

INFECTION FROM THE HANDS IN PHTHISIS.

Discussed by Dr. J. Edwin Stubbert, of Liberty, N. Y., Dr. James A. Hart, of Colorado Springs, Dr. A. Jacobi, of New York, and Dr. T. D. Coleman, of Augusta, Ga.

DR. WM. DUFFIELD ROBINSON, of Philadelphia, read a paper entitled

CLIMATOLOGY OF NUDITY; PARTIAL AND COMPLETE.

Illustrated by photographs showing the penetration of light through various textures. Discussed by Dr. Daland.

DR CHARLES E. QUIMBY, of New York, read a paper entitled

DEFINITE RECORDS OF PHYSICAL SIGNS.

Discussed by Dr. Judson Daland.

DR. FRANCIS H. WILLIAMS, of Boston, presented an

OUTLINE OF THE CLINICAL USES OF THE X-RAYS.

DR. F. I. KNIGHT, of Boston, in introducing the discussion of Dr. Williams's paper, said: I would say that Dr. Williams before the meeting told me that he hoped there would be a very free discussion of his paper. I do not consider myself able to discuss it, but announce it to those gentlemen who are. He wants, if possible, criticism, for it is a new field and he would welcome it if any of the gentlemen can give it.

For my own part I feel with him that the fluoroscope is a very important addition to our armamentaria. In a case of suspected aneurism, I appreciate its possible great value when I recall the number of cases I have seen in which there has been doubt as to what was compressing the trachea. If we could get such a picture as this on the wall there would be no question but that it was an aneurism; and so in regard to the size of the heart, I was particularly impressed with what Dr. Williams said about emphysema being an aid rather than a hindrance, as emphysema interferes so seriously with the results of percussion, and he also tells us that excessive fatty condition of the chest walls which renders percussion of the cardiac region difficult is very little hindrance to examination with the fluoroscope. And even in tuberculosis, notwithstanding the criticism of my learned brother yesterday, I do think that every aid we can get to an early diagnosis is going to be of much importance. As yet it seems, perhaps, that it is of less advantage in that disease than in others. It is evident from what I have seen and from what Dr. Williams himself admits, that this art is difficult, and for a time perhaps it must rest in the hands of those who have had long experience like Dr. Williams, but in the end perhaps methods may be simplified so that we can all avail ourselves of it. At any rate, in doubtful cases we can have the aid of our brothers who become expert in it as Dr. Williams has.

DR. CHARLES E. QUIMBY: I would also ask if he has found any fluoroscopic screen which can be made to conform to the chest wall. It would seem that absolute uniformity in placing the tube, as to distance from and relation to the spine, would be imperative to avoid relative distortion of the outlines of the heart upon the screen. I understood the doctor to say he had not seen the heart shorten. It was my good fortune recently, through the courtesy of Mr. Tesla, to see a most perfect demonstration of the heart. When the tube was more nearly in the plane of the spine the lateral excursion of the heart was prominent, but when carried more to the left and lower, then the shortening was equally prominent and distinct.

DR. VINCENT Y. BOWDITCH, of Boston, in discussing Dr. Williams's paper, said: It is hardly necessary for me to speak on this paper, it is, however, my pleasure and privilege to testify to Dr. Williams's painstaking, careful work in the city hospitals where I have been associated with him. One point comes to my mind, and that is the apparent ease of recognition of incipient tuberculosis by means of the x-ray machine. It seems hard to realize that by the x-ray machines we can discover a very slight beginning tuberculosis when we cannot discover it by auscultation and percussion. I should like to have Dr. Williams enlarge a little more on that subject.

DR. DIDAMA asked: What is the expense of this instrument which shows things we have never been able to see? Is it really demonstrated, as you think, that there is no difference between the effect of static electricity and that ordinarily employed in producing the x-rays? Some operators claim that static electricity never burns the skin.

DR. R. G. CURTIN, of Philadelphia, said: It occurred to me when Dr. Williams told us that in one

case where the lung was a little cloudy the use of digitalis cleared it up, that the patient might have had edema of the lung which was cleared up by the treatment. I would like to ask Dr. Williams what is the appearance of old pleural adhesions, especially those in which the pleura was thickened. It has occurred to me that it would be difficult to distinguish between the catarrhal process and that of tubercular infiltration, that is, if the sputum yielded no bacilli.

DR. J. E. STUBBERT said: I believe Dr. Williams wrote the most scholarly article about a year ago that ever appeared on the subject, and I am thoroughly familiar with his views. It is hardly necessary to add anything to what he has said, but with reference to a remark of Dr. Quimby's as to the shortening of the heart, I have observed it a number of times. When I first began working in this line it was my custom to bring into the dark room laymen who would naturally have no knowledge of what they were to see, and they have often described to me the shortening of the heart in action. I have repeatedly noticed a dimpling of the apex. The doctor referred to some one considering the examination by x-rays a joke: I have gone through the same experience. I remember Dr. H. P. Loomis once came to Liberty and told me he didn't believe in the x-ray at all. I brought in a case which neither of us nor the house doctor had ever seen before. I asked the doctor to examine the case and he diagnosed it as consolidation of the right apex, with beginning softening and some infiltration in the lower lobe. He made the rather significant remark that he might not have a cavity, but was beginning to have. I then examined the case and agreed with Dr. Loomis's diagnosis. I sent for the house doctor and he examined him with the x-ray. After a moment he said: "This man has consolidation of the right apex, he has infiltration of the lower portion of the lung and while he may not have as yet a cavity he is going to have one in a short time." Dr. Loomis said: "Well, if it can be diagnosed in that way I will have nothing more to say," and he is now a convert. There is no doubt in my mind that we can diagnose, especially in thin subjects, very slight infiltrations at the apices of the lungs. We all know how difficult it is to educate our ears sufficiently to distinguish indistinct sounds, but with the x-ray the slightest infiltration is shown in a slight haze.

Four brothers were brought to me, one with laryngeal tuberculosis and infiltration at the apices. There was a bad family history. The examination of the remaining three by ordinary methods revealed nothing, but with the fluoroscope I was able to distinguish a very slight haze at the top of one lung in two of them. The result was that those boys were left in the country for a winter, and when I examined them some twelve months later the haziness had disappeared and they were apparently saved from the more serious form of tuberculosis by that method of examination.

The question of burns is a very interesting one to me, as early in my experiments two patients were rather severely injured. At first I used a coil and in attempting to photograph lesions of the lungs the accident happened. One patient recovered in a very short time, and the other died from his pulmonary disease before the skin lesion had healed. We now use the static machine from which I have seen no bad results.

Another form of tuberculosis that I think is more easily demonstrated by the fluoroscope than by ordinary methods of examination is the disseminated one. The condition of pericarditis with effusoin is one which I have never seen. Pleurisy with effusion is very easily marked out.

One more point regarding the remarks of Dr. Butler last night as to the shape of the right side of the heart; I would like to ask Dr. Williams what his experience in that line has been. It never having been brought to my mind I have not studied the exact outline of the right side of the heart, but speaking from memory I remember only three or four cases in which the outline was vertical as stated by the doctor last night. In most cases the right side of the heart shoots off rather abruptly above the margin of the fifth rib, and I should be inclined to think that the shadow thrown can be more depended upon than percussion note.

DR. BEVERLY ROBINSON said: I would like to ask Dr. Williams what should be done when the patient is so ill that he cannot be carried to a proper examining room. As I understand it, it is necessary to have a certain amount of darkness to have the examinations made. I would simply say in addition to what has already been said that I had a case very similar to the one shown of aneurism, and it was certainly much more definitely made out by the fluoroscope. I would ask the question in reference to hospitals in Boston and elsewhere, whether in most of the hospitals they have this instrument, whether it is generally used, and to what degree it is used?

DR. WILLIAMS, in closing the discussion of his paper said: I did not take up the methods of examination in this paper because I had described them in previous articles.[1] My patients at the hospital were brought into the x-ray-room on a stretcher which fits the supports attached to the stand of the x-ray machine. If a patient is too ill to be moved he cannot very easily be examined, although this is possible by means of a portable x-ray machine. The anode of the Crookes' tube should be at least two feet away from the patient for examining the thorax and usually under the point where the median line is crossed by a line joining the nipples; this position should be determined by plumb lines. The median line is obtained by sighting from a permanent plumb line, with a weight at the end, that is fastened to the middle of the support upon which the head of the stretcher is placed, to another fastened to the support at the foot in the same way. The other is determined by putting a line seven or eight feet long, with a weight on either end, across the chest from nipple to nipple, that is to say, on a level with the fourth ribs. The line hangs down on either side and the proper point is obtained by sighting as before from weight to weight. The patient should be lying on his back when he is examined. I tested the correctness of the plumb lines as a guide to the position of the tube by making two successive examinations, the patient getting up and the tube being moved after the first examination and both patient and tube being rearranged for the second. The outlines of the heart and ribs traced by means of the fluoroscope in these two examinations differed only by the width of the line.[2]

[1] "A Study of the Adaptation of the X-rays to Medical Practice," Medical and Surgical Report of the Boston City Hospital, January, 1898. "X-rays in Medicine," Medical News, May 14, 1898.

[2] An instrument, which is a form of plumb line, that I have devised for determining the exact position of the Crookes' tube, when it is desired to place it directly under the point to be examined is shown in Fig. 16. This is especially useful in cases where the median line is not available as a point of reference. I have used this instrument from time to time for more than a year.

The essential part of the fluoroscope is the screen and, if the room is properly darkened, this may be used alone, as the box part of the fluoroscope, which excludes the ordinary light from the eyes, is not then necessary and prevents them from being brought as near to the screen as is sometimes desirable. This screen should be twelve by fourteen inches and for making a permanent record of a case may be covered to advantage with a piece of thin glass or a film of celluloid or gelatine — these do not obstruct the light. If the surface of the film is ground an ordinary pencil may be used, but for smooth surfaces a lithographer's pencil is necessary. The outlines of the heart and diaphragm, for instance, that have been drawn on the film, may be traced, after the patient has been taken away, on a suitable sheet of paper placed over the film if both are held up against a window. The patient's name, the diagnosis, date, etc., may be added and the paper filed away for future reference. Some of the examinations[3] I have made were recorded in this way but more by using tracing cloth that was placed directly on the patient and the lines which had been drawn on the skin[4] by means of the fluoroscope were traced upon the cloth.

For purposes of study the best machine is necessary but having learned to identify the appearances in the chest, for instance, under both normal and abnormal conditions, a portable x-ray machine may be used with satisfactory results if the patient is too ill to come to the office or, in case of a hospital patient, to be moved to the x-ray room, but if the physician is not familiar with these appearances a small machine of this kind is unsatisfactory.

I have not discussed the heart's pulsations fully but I did not mean to suggest that the heart, with the tube in this position, appears to have no motion at the apex, but merely that its most conspicuous motion is on the left side as shown in the diagram.

The normal heart varies in size and position within certain limits. I have already referred to the great importance of determining whether or not the heart is smaller than normal. We also need to know if the heart is of unusual size and if this is the case in what part the organ is enlarged. The right border of the heart is difficult to determine by auscultation and percussion, but it is seen in the fluoroscope, especially during full inspiration, about one inch and three-quarters to the right of the median line. In women and boys and girls the distance is less.

We can see the right auricle in both health and disease and in certain diseases a part of the left auricle also.

Aneurism of the heart may be seen in the fluoroscope; also aneurism of the aorta. The outlines of an aneurism of the aorta, which appears on the screen as a dark area, may sometimes be seen to move with the pulsations of the heart but when these pulsations are not seen the diagnosis, with the fluoroscope, must be based on the position and shape of the dark area.

Let me refer a moment to the diagram of pericardial effusion taken from a patient in my service in the early part of 1897.[5] I examined him with the fluoroscope because of this effusion but while doing so observed that the apex of the right lung was darker than normal. I then made a physical examination of the lungs but could find no evidence of phthisis. I continued to examine the lungs in the fluoroscope from time to time and noticed that the diseased area extended and the excursion of the diaphragm on the right side diminished; finally the left lung also became involved and the movement of the diaphragm on this side was also shortened. No physical signs were found on the left side at this time by auscultation and percussion but they were now marked on the right side. I gave the patient tuberculin to which he reacted. The excursion of the diaphragm is sometimes seen in the fluoroscope to be restricted before a diminution in the brightness of the lungs is observed.

I have seen one case of tuberculosis which gave no sign in the fluoroscope although bacilli were found. The patient had tubercular laryngitis. There are, on the other hand, certain cases that might easily be overlooked by auscultation and percussion which would readily be detected by an x-ray examination.

Among the cases of pleurisy with effusion that I examined with the fluoroscope, there were some in which a darkened area of the lung and a diminished excursion of the diaphragm led me to suspect tuberculosis, when it had not been detected by physical examination. This suspicion was afterwards confirmed in certain cases by the tuberculin test or by the finding of bacilli.

Edema of the lungs may be distinguished from early tuberculosis by observing the chest. In the former the lower part of the chest on both sides is dark, whereas in early tuberculosis, the darkness is usually on one side and at the apex.

Adhesions of the pleura without thickening would not obstruct the passage of the rays and therefore could not be seen in the fluoroscope, but if the movement of the diaphragm were restricted, an adhesion might be suspected.

Auscultation and percussion may leave us uncertain whether we have to deal with an adhesion with thickening or with a pleuritic effusion, but the fluoroscope can tell us certainly if fluid is absent unless it is encysted If present the diaphragm line is obliterated on the side of the effusion, especially in the outer portion where it curves down to the side of the chest, because fluid would sink and fill in this lower and outer angle unless it were encysted. The ability, then, to follow this portion of the diaphragm line proves the absence of fluid except in the particular case just mentioned. Even in such a case I have suspected the presence of fluid by means of the fluoroscope and this suspicion was confirmed in one case by an autopsy and in another by tapping. The x-rays enable us to choose the most desirable place for inserting the needle. Calcareous deposits in the pleura are seen as dark areas in the fluoroscope. This is also true of calcareous deposits in the aorta or in certain portions of the heart.

A suitable outfit for making x-ray examinations will cost at least five hundred dollars. I have been obliged to have mine made to order and by these means was enabled to get the various adjustments desirable for a practitioner.

Burns may be produced when either the static machine or the coil is used, but with the simple precautions now known to the practitioner they are avoidable. None of my patients have ever been burned

[3] I have now tracings and notes of more than one thousand x-ray examinations which are classified according to diseases, but thus far I have been so occupied in obtaining a satisfactory apparatus that I have not had the opportunity of publishing as many of the results as I shall hope to publish later.

[4] It is not necessary in most cases to remove the clothes.

[5] I reported this case in an article called "The Röntgen Rays in Thoracic Disease," American Journal of the Medical Sciences, December, 1897.

and I have been making x-ray examinations, sometimes with the static machine and sometimes with the coil, during about two and a half years. Tesla suggested placing a screen of aluminium wire, or a thin sheet of aluminium, which should be grounded, between the tube and the patient to prevent any risk of burns. The following experiments of an electrical engineer made upon himself with a static machine, suggest that burns may be prevented by grounding the anode. During the first fourteen days of November, 1896, he exposed his skin to the Crookes' tube at a distance of less than two inches. The first exposure was three-quarters of an hour, the second, half an hour, the third, one hour, the fourth and fifth, half an hour each. These successive exposures were at intervals of about three days. The anode was always grounded and there were no untoward results. On December 21st, he exposed the same portion of his skin in a similar manner for half an hour, without grounding the anode. Twelve days later the skin was blistered and a severe ulceration followed.

Photography gives more detail than the fluoroscope — for instance, I have taken x-ray photographs which showed normal arteries; these could not be seen in the fluoroscope, but the latter has the advantage in examining the thorax, for example, as the movements of the diaphragm and heart can be watched and the examination with this instrument can be made more quickly. Photography requires a great deal of time, even with the dark room at hand, as it is necessary to wait for the plate to be developed, but I use either the fluoroscope or the x-ray photograph as occasion requires and have a dark room at my office.

I do not know exactly how many hospitals have x-ray machines. I am told at least thirteen in New York have them. We have them in Boston and they are also to be found in Philadelphia and Baltimore and probably in all the large cities in the country.

One last word about this method of examination. In hospitals it will be always desirable to have a photographer to take the x-ray photographs, to keep everything in order and manage the apparatus, but it is not practicable for other than medical men trained in this special work to make the x-ray examinations. You would not send a patient to a man who was not a physician for auscultation and percussion.

The officers elected for the ensuing year are: Dr. Beverley Robinson, New York, President; Dr. James A. Hart, Colorado Springs, and Dr. Richard C. Newton, Montclair, N. J. Vice-Presidents; Dr. Guy Hinsdale, Philadelphia, Secretary and Treasurer; Dr. E. O. Otis, Boston, Member of the Council; Dr. Frederick I. Knight, Boston, Delegate to the Executive Committee of the Congress of American Physicians and Surgeons; Dr. R. G. Curtin, Alternate.

Adjourned to meet in New York City, May, 1899.

STATE HOSPITAL FOR INSANE IN CONNECTICUT. — The legislative committee of Connecticut have reported the necessity of erecting another hospital for the insane, and that in consideration of one-half the patients being admitted to the State Hospital from Fairfield and New Haven Counties, the hospital should be located in Bridgeport. A commission has been again appointed by the last Legislature, of which Dr. Amos J. Givens, of Stamford, and Dr. C. B. Adams, of New Haven, are members. This commission is in search of good locations.

Recent Literature.

A Text-book on Surgery, General, Operative and Mechanical. By JOHN A. WYETH, M.D., Professor of Surgery in, and President of the Faculty of, the New York Polyclinic Medical School and Hospital, etc. Third edition. Revised and enlarged. Illustrated. 997 pages. New York: D. Appleton & Co. 1898.

The author's preface is a good description of this attractive volume, the first edition of which was published in 1886. The work in its present form is greatly improved. The writer has tried to bring it up to date and to introduce everything which represents an advance in surgical science or operative technique, especially what experience has demonstrated to be of actual value. Although much has been added to the previous edition, still much also has been omitted, so that the present volume exceeds the former by only one hundred and twelve pages. To accomplish this the work has been practically re-written. Professor Wyeth has tried to adopt an arrangement suitable for ready reference to a desired subject. The introductory section treats of surgical pathology. Other subjects noted are the chapters on surgical dressings, sterilization, asepsis, antisepsis, hemorrhage, wounds, burns, amputations, affections of the lymphatic and vascular systems, especially that describing aneurisms, ligation of vessels, bones, joints, and regional, especially abdominal, surgery. Several of these articles one reads with great interest and profit, notably that describing amputation of the hip and aneurism of the innominate artery, which subjects are very thoroughly presented. If one criticized anything in such a well-written work, it would be the chapter on Orthopedic Surgery, in which some changes are necessary to make this part correspond to the high standard of advanced ideas seen in other portions of the book. But this is a minor defect, and the volume, as a whole, is a very satisfactory one, and excellently well adapted for a text-book.

The Mental Affections of Children; Idiocy, Imbecility and Insanity. By WILLIAM W. IRELAND, M.D., Edinburgh. 442 pages. London: J. & A. Churchill. Edinburgh: James Thin. 1898.

This volume is an excellent sequel to Ireland's former work. As stated in the preface, he has drawn liberally on his previous work "On Idiocy and Imbecility," but nevertheless has produced a practically new treatise. As he modestly puts it: "I am pleased to have this opportunity of being able to give my more matured views, though the principal merit of this work probably is, that it brings together the widely-scattered studies of able observers on the subject of 'Idiocy and Imbecility.'" The two points which stand out prominently in a reading of the book are, first, the sense of originality and valuable personal experience, and secondly, the admirable use to which the author has put the experience of others.

In addition to a discussion of the definitions, statistics and causes, there is a detailed consideration of the varieties of idiocy, and finally, interesting chapters on education and laws governing idiocy and imbecility. So far as we are aware, it is the most complete work in English on the subject of which it treats, and certainly is of great value, both from a practical and

theoretical point of view. Especially to be commended are the many valuable suggestions as to the treatment of this unfortunate class of defectives. Ireland does much to dispel the too prevalent idea that the cases are, in this respect, hopeless, and lays just stress upon the value of education, properly directed, toward the amelioration of the conditions under consideration.

The strictly scientific portion of the book is on the whole less satisfactory than its more practical chapters. We see, for example, no real advance in the classification of idiocy over what has gone before. To our mind, a classification in this field to be valuable, must be from the standpoint of pathology, rather than from that of more or less superficial clinical features, and gross appearances. To speak of idiocy as paralytic or epileptic, or hydrocephalic or microcephalic, is no longer sufficient to satisfy the inquiring mind, particularly when our knowledge, through the researches of Hammerberg and others, has certainly gone beyond the stage which regards gross changes as adequate explanations. Everywhere throughout the book, there is evidence that Ireland has not attributed sufficient importance to the findings of the microscope. Meagre as such findings still are, we rightly claim their recognition in so important a matter as the classification of defective mental states.

We question somewhat, also, the use of the term "idiocy by deprivation," as Ireland applies it. He places Laura Bridgman in this class. It seems a needless stretching of the meaning of the word "idiocy," to include in it persons handicapped by the loss of one or more senses, whose mental faculties are otherwise quite unimpaired.

The volume is admirably printed and well illustrated, and is unquestionably a most valuable addition to our general knowledge of the whole subject of the mental affections of children.

Phillipe Pinel: A Sketch. By FRANCIS TIFFANY, with an introduction by J. M. B. Pp. 29. 1898.

In this short sketch of the life and work of Pinel, we have at once a sympathetic account of the great reform in the treatment of the insane, which he inaugurated, and a valuable historical sketch of an interesting personality. With the rapid growth of medical knowledge we are too apt to ignore or forget the initial work in any one line, and it is well that reminders of the labors of the great men of the past should constantly be furnished us. Such a function this small pamphlet fulfils. It is entertainingly written, beautifully printed and has as frontispiece a good reproduction of the painting by Fleury of Pinel's visit to the Salpêtrière in 1795.

Abdominal Surgery. By J. GRIEG SMITH, A.M., F.R.S.E., Surgeon to the Bristol Royal Infirmary, Professor of Surgery, University College, Bristol. Sixth Edition. Edited by JAMES SWAIN, M.S., M.D., Lond., F.R.C.S., Professor of Surgery, University College, Bristol, etc. Two volumes. Philadelphia: P. Blakeston, Son & Co. 1897.

This work is so well known that an extensive review seems superfluous and unnecessary. Its popularity is shown by the fact that this new edition is published about one year after its predecessor. It has been recognized from the time of its introduction into medical literature as one of the leading if not the first among the productions of English surgical writers. The chief part of the present edition is the work of Professor Swain, only the first hundred pages having been revised when the profession met its great loss through the death of Prof. Grieg Smith. Professor Swain is thoroughly familiar with the work, having actively shared for three years in the preparation of the last fifth edition. Also constant co-operation with his distinguished colleague in his private and public work has made him familiar with his views and methods. Although the short interval between the fifth and sixth editions has necessitated fewer changes in the text of the latter than in previous ones, it is nevertheless thoroughly revised and represents the most advanced ideas in this branch of surgery. The book in its present form is excellent and should occupy a conspicuous place in the library of every physician or surgeon.

Ambroise Paré and His Times, 1510–1590. By STEPHEN PAGET. Illustrated. New York and London: G. P. Putnam's Sons. 1897.

The chief interest in this most excellent account of the life and times of a man who impressed his character and work so deeply upon the history of surgery lies in his personal letters describing his "Journeys in Diverse Places," which give a most vivid account of the conditions of military surgery during the sixteenth century, and the work in camp, field and fortress, in success and defeat, of a master of surgical art, whose activity and devotion in the pursuit of his calling seem almost superhuman.

The story of Paré's life, aside from what is given by himself in the letters, is well told, by one whose knowledge both of European and surgical history enables him to do justice to the influence of the times in which he lived upon the great surgeon, and Paré's influence upon surgical practice.

Many readers will perhaps be surprised to learn that Paré did *not*, as is quite generally believed, invent the ligature of arteries, which had been previously used to stop the bleeding of vessels in wounds, but was the first to employ the ligature in wounds made by amputations.

Not only toward Paré the surgeon, but Paré the man is great interest and attraction developed in the reader of this biography, which portrays with vigor and accuracy the many noble attributes of the character of one of the leaders in surgery.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By GEORGE FRANK BUTLER, Ph.G., M.D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Medical Department of the University of Illinois, Professor of General Medicine and Diseases of the Digestive System, Chicago Clinical School, Attending Physician to Cook County Hospital, etc. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

The second edition of this well-known work has been improved by a thorough revision, which has brought it abreast of the latest advances in pharmacology. A chapter on the "Untoward Effects of Drugs," including a table which summarizes our knowledge of the subject, has been substituted for the chapter on "Definitions."

The difficulties of the classification of remedies are

successfully met, and the book well arranged and indexed for reference.

As an aid to the student in mastering a difficult part of his medical curriculum, and as a reference-book for the practitioner, this book will be found of distinct value.

Hand-book for the Hospital Corps of the United States Army and State Military Forces. By CHARLES SMART, Deputy Surgeon-General, U. S. A. Approved by the Surgeon-General of the Army. New York: William Wood & Co. 1898.

This manual, which is intended for the instruction of the members of the army hospital corps in the duties of their service, is a clearly written, well-classified book of three hundred and fifty pages.

It is divided into three parts, the first of which deals with the organization of the corps for service in camp and field, sanitary care of camps, etc.

The second part gives an elementary outline of anatomy and physiology, such as is required for the understanding of first-aid work, and is generally included in books on first aid to the injured.

The third part deals with the special duties of the hospital corps, and includes descriptions of the types of accidents, wounds and diseases with which military surgery is especially concerned. A brief chapter on the elements of cookery is also added. The book will be found excellently adapted for the purpose for which it is intended.

Cataphoresis; or, Electric-Medicamental Diffusion as Applied in Medicine, Surgery and Dentistry. By WILLIAM JAMES MORTON, M.D., Professor of Diseases of the Mind and Nervous System and Electro-Therepeutics in the New York Post-Graduate Medical School and Hospital; Member of the Medical Society of the County of New York; Permanent Member of the Medical Society of the State of New York; Member of the Röntgen Society of London, etc. New York: American Technical Book Co. 1898.

The aim of the author of this work, as stated in the preface, has been to publish in a single volume for the medical and dental professions our present knowledge of "electro-medicamental diffusion," which he considers has already demonstrated its value in dental practice, and before long will be appreciated at what he considers its real worth for the production of local anesthesia for minor surgical operations.

The ordinary methods of injecting cocaine into tissues with the hypodermic needle were obviously unappliable to the dental pulp, which is covered by the hard impenetrable dentine. The method of electrical cataphoresis, according to Morton, has solved the problem of the anesthetization of dentine.

The book gives a full history of the gradual progress of the experimental work which has gradually led up to the present methods by which cataphoresis by the electric current is accomplished, together with an elementary account of the electrical principles involved, and of the apparatus employed.

Cases are cited in which this method has been successfully used at the New York Post-Graduate Hospital for the production of local anesthesia for surgical operations. From eight to fifteen minutes' application of the current is required. It would seem to the writer of this review that the time required for the production of anesthesia and the complication of the apparatus, difficulty of transportation, etc., will probably render the method for general surgical purposes inferior to the endermic injection of weak solutions of cocaine or eucain, which have proved almost universally so satisfactory.

The book also gives an account of the cataphoresis administrations of drugs in the treatment of general diseases, and in fact includes almost everything that has been done or attempted in the way of introducing drugs into the human system by electricity. It will be of considerable value to dental practitioners, and of interest to all physicians and surgeons who are interested in the various methods of local anesthesia and the introduction of drugs into the system by the electric current.

Manual of Chemistry; A Guide to Lectures and Laboratory Work for Beginners in Chemistry. By W. SIMON, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore. Sixth edition. Philadelphia and New York: Lea Brothers & Co. 1898.

Former editions of this work have received full notice in these columns. In the present volume the author had adhered to the same arrangement of subject-matter as in previous volumes. The text in each section has been carefully revised and enlarged by the addition of the important results in scientific progress of recent years, as far as they bear upon the subject in hand.

The book contains all the subject-matter that is necessary in a manual of chemistry for physicians or students of medicine. The style is clear and elementary and is thus particularly adapted to beginners in chemistry.

The reactions of the metals and the alkaloids are illustrated by sets of very excellent plates. The preparation of these plates shows evidence of great care and labor, and they cannot but be of great service to the student who works in the laboratory with the manual.

The chapters upon physiological chemistry are written with a view to the application of the work in this field to clinical diagnosis. They are well adapted for reference in practical medical work.

Wounds in War. The Mechanism of their Production and Treatment. By SURGEON-COLONEL W. F. STEVENSON (Army Medical Staff), A.B., M.B., M.D., M.Ch. Dublin University; Professor of Military Surgery, Army Medical School, Netley, Four hundred and thirty-seven pages and 86 illustrations. New York: William Wood & Co. 1898.

This is an American reprint of the original English edition (Longmans, Green & Co., London, 1897), a review of which has already appeared in the JOURNAL (1898, vol. cxxxviii, p. 382.) As the present volume is an exact copy so far as the subject-matter of the text and illustrations are concerned it is unnecessary to further describe it. It is a very interesting, valuable work. It is well and carefully written. The American book is somewhat larger, and gives to one familiar with the English volume the impression that it is a second edition of the work, since it bears the date of 1898. This is not the case, for the book as far as we know has not be rewritten.

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THE UNITY OF SYPHILITIC LESIONS.

IN a valuable address before the Ontario Medical Association at Toronto last June, on the stages and forms of syphilis, with more especial reference to the hepatic manifestations of the disease, Dr. J. G. Adami, of McGill University, makes some timely and useful remarks in regard to the unity of syphilitic lesions.

Dr. Adami conceives that there is no more firmly fixed idea in the whole of medicine than that of the absolute existence of three different stages and forms of syphilis — a primary, secondary and tertiary stage. But without desiring to pose as a revolutionist or an iconoclast, and acknowledging broadly and generally the utility of these divisions, he believes there is danger in these fixed ideas in medicine, as in other things, and that an occasional challenge of that which is accepted of all men as fixed and assured is of benefit. Notwithstanding the work of Wagner thirty years ago, the protest of Nevins Hyde and the writings of others, the profession in general is still too imbued with a firmly planted idea of the sharp demarcation of the different forms and stages of syphilis.

Adami takes the ground, at the outset, that it is not even necessary to have any recognizable first stage or cutaneous chancre. Cases are not rare in which there is a complete lack of evidence of any superficial primary infection. He then lays down the following postulates:

(1) That from analogy, as from clinical history and absence of any indications of the same, in sundry cases there may be an absence of the primary cutaneous or epithelial manifestations of syphilis.

(2) That individuals may fail to present either primary or secondary symptoms that are recognizable, and yet eventually develope definite tertiary lesions of the disease.

(3) That where the subject is relatively insusceptible, it is possible that the disease may be limited to the primary cutaneous manifestation not followed by secondary lesions.

(4) That as with tuberculosis so with syphilis, the congenital form of the disease begins at what may be termed the secondary stage of the acquired disease, that is, the stage of general dissemination of the virus through the organism.

With reference to the relationship between secondary and tertiary syphilis, Adami holds that the lesions occurring in the congenital and the acquired disease are identical, and brought about by the same process or processes.

That whether we have to deal with the disease in the secondary or in the tertiary stage, the same processes are at work. That if we except those cases as truly tertiary in which we have to deal merely with the fibroid remains of obsolete gummata, and, again, those cases in which there is perihepatitis (which perihepatitis appears to be a complication rather than the genuine and direct result of syphilis), then we are bound to admit that the study of the liver alone would indicate that no sharp boundary line can be made out between secondary and tertiary syphilis. Neither can such a boundary be made out between secondary and tertiary tuberculosis.

While all must admit the utility of recognizing these two stages, from an anatomical and histological standpoint one is forced to acknowledge that progressive syphilis is characterized by the same succession of phenomena, whether it be studied but a few months or long years after the primary infection. Anatomically and histologically there is no valid distinction to be drawn between secondary and tertiary syphilis.

Is not such a conclusion wholly at variance with clinical opinion and experience? Upon the face of it, it is; but if the subject be looked into carefully, he thinks that such a view will reconcile not a few of the divergences existing among syphilologists. There are those (and they are the majority) who state that tertiary syphilis is non-infectious, and those who bring forward clear examples of the production of infection five or ten years after primary inoculation of the disease. This difference can be reconciled if we agree upon the following points:

(1) That nowadays, under proper treatment, syphilis, if not a self-limiting disease, is at least a disease which can be healed; so that many of the lesions recognized as being tertiary syphilis are truly the indications of the old healed syphilis, and not signs of progressive or latent disease.

(2) If the disease has not completely died out and remains latent, the resistance of the tissues of the organism is such that in the majority of cases, if it does not tend to light up again, there is so considerable a local reaction that the infection and, consequently, the spread of the process tend to remain strictly localized, and the germs (which are probably of bacilliary nature) do not become disseminated through the blood. Thus neither the blood nor the secretions contain the virus.

(3) In a very small number of cases the reaction on the part of the tissues may be so lessened, and the virus retain or gain so high a virulence, that either it causes ulceration, or, in other ways, becomes disseminated, and capable of causing infection even late in the tertiary stage.

QUARANTINE AND THE MEMPHIS CONVENTION.

WE shall take occasion next week to speak more fully of the conclusions and results of the meeting of the Convention held last week, in Memphis, in response to an invitation of the Board of Trade of that city, to consider the question of quarantine.

It is desirable to have an efficient and, as nearly as possible, a uniform quarantine service for this country. The problem is how to accomplish this without too much interference with such local administrations as are now recognized as being intelligent, efficient, discriminating and vigorous. What shall the central organization be, and what its powers and duties? How far shall initiative and execution be left to local boards and officials? The answer of the Memphis Convention to these questions is summed up in the following report of the Committee on Resolutions, which was adopted unanimously:

The Committee on resolutions after careful consideration of the many valuable resolutions offered by the various members of the Convention decided upon the following, as embodying the ideas expressed in the majority of the said resolutions.

Therefore, That for the purpose of protecting and improving the general health of the people of the United States, co-ordinating and harmonizing the action of the State and National sanitary authorities; framing regulations for the treatment of infected vessels and material at all infected or suspected foreign ports of shipment; preventing unnecessary interference with commerce, the United States mail, or traffic by land or water; and for adopting a uniform system of quarantine for all ports in this country, be it

Resolved, That there be established on a broad and comprehensive basis a National Bureau of Public Health in the Department of the Treasury of the United States. That the administration of all the public health functions, now exercised by authority of the United States, be placed in charge of this Bureau.

Resolved, That the sanitary authorities and commercial interests of the several States of the Union be brought into immediate relations with the Bureau, and be given a due share in the power and responsibilities of the Central Board, through the agency of an Advisory Council, consisting of one member from each State, to be appointed by the authorities of the several States.

UNITED STATES PENSION SURGEONS AND THE CIVIL SERVICE LAW.

FOR some little time we have been receiving ominous reports from private sources, that the President was lending a too willing ear to suggestions from some quarters, that he should issue an order placing the United States Pension Surgeons outside of the protection of the Civil Service Law, and thus render them liable to displacement by political influence. Now the subject is beginning to be ventilated by the daily press. It has been hard to believe that such a step was really imminent. It may strike some professional politicians as "good politics," but it can hardly prove to be such in the long run.

There are four thousand medical examiners of the Pension Bureau. At present these appointments come under the classified service, but it is said that the Pension Commissioner has for some time, by a "strained interpretation," disregarded and evaded the law, appointing extra boards of examiners at will.

Pension surgeons should be as safe from interference as the surgeons in the army and navy. Army and navy surgeons are appointed on carefully ascertained merit, after serious examinations by competent boards selected for that purpose. All vacancies on Pension Examining Boards should be filled in the same way, under the Civil Service Examinations, the machinery for which now exists.

Nearly $1,000,000 is now appropriated annually for medical examiners' fees. Is this sum to be turned into the spoils of politics, and are the pensions growing out of the recent war to be settled on a party and political basis? If so, there is one thing less to be thankful for this Thanksgiving Day.

MEDICAL NOTES.

A DEATH FROM YELLOW FEVER IN WASHINGTON. — A death is reported from yellow fever in Washington, in the person of an engineer, lately returned from the Isthmus.

INSPECTION IN THE LATE WAR. — The testimony given by Gen. J. C. Breckinridge, before the Investigating Committee, seems to account for a good many things which were done and left undone in connection with the army during the late war, and which have given rise to so much criticism. General Breckinridge was Inspector-General of the Army from 1881 until the outbreak of the war. He was regarded as a very competent Inspector. He was transferred to the line as a Major-General, with other trained and experienced officers in the same department. The Inspector's Department was practically abolished, and its duties turned over, in a large measure, to untrained, untried men.

THE VIVISECTION BILL IN THE NATIONAL SENATE. — At a recent meeting of the Joint Committee on Vivisection, o the Scientific Societies of Washington, the following resolution was adopted: "Resolved, that the secretary be authorized to call the attention of the prominent medical and scientific journals of the country to the importance of the meeting of the American Humane Society, to be held in this city in December proximo, and to request that editorial notice be

taken of the danger that the influence likely to be exerted at that meeting may cause the vivisection bill now pending in the Senate to be called up and passed." We appeal to our readers for their attention to this matter, and earnestly advise them to write to their respective senators and representatives in regard to it.

BOSTON AND NEW ENGLAND.

The Boston Medical Library. — All members of the profession are cordially invited to attend a meeting of the Boston Medical Library, which will be held at 19 Boylston Place, Tuesday, November 29th, at 8 P. M., to consider the question of raising funds for a new building.

Bequest to the Cambridge Hospital. — By the will of Alice Sargent, wife of Samuel Duncan Sargent, which has been lately filed at the Suffolk Probate Office, the sum of $3,000 is bequeathed to the Cambridge Hospital.

Overpressure in the Public Schools. — At the request of a sub-committee of the Boston School Committee, appointed to examine into the matter of alleged overpressure in the schools, the department of Municipal Statistics has undertaken a compilation of statistics in regard to the effect of school life upon the children in the public schools, with a view of ascertaining if there are any indications of overwork or overconfinement. Some new and interesting material has already been gathered, and the way paved for a more thorough examination of this very interesting subject.

Death at the Age of One Hundred and One. — Mrs. Sophia Walbridge Winne, the oldest person in Bennington, Vt., died November 18th, aged one hundred and one years.

The Control of Tuberculosis. — The State Board of Health of Connecticut has issued a circular (No. 73) for public information on "Consumption, its Cause and Means of Prevention." The Board, believing that any effort to restrict and control the prevalence of consumption will be a failure without the hearty and intelligent co-operation of the public, hopes that the information which it gives will awaken an interest which will bring practical results.

NEW YORK.

"Apparent Death." — A paper on "Apparent Death," read before the Society of Medical Jurisprudence by Dr. Henry J. Garrigues on November 14th, has attracted considerable comment. As the law of the State now stood, he contended, there was nothing to insure people against being buried alive or killed by an undertaker. Danger of taking live persons for dead, he said, remained even after a trial of all the ordinary tests, not one of which but was liable to fail under certain conditions. There was only one sure proof of death, and that was decomposition. Incidentally he expressed the opinion that the subjects of electrocution might perhaps be restored to life, basing his argument on the fact that persons and animals struck by lightning sometimes survived. Dr. Garrigues did not altogether favor the custom of some European countries of having physicians appointed to examine every body and issue the death certificates, as he feared that politics might creep into the appointments and lead to the selection of incompetent men. In his opinion the regularly authorized practitioner of medicine could perform this duty with perhaps greater safety, but in every instance they should be required to certify that they had personally examined the body and give their testimony to the presence or absence of all signs of death. Until such certificate was made he thought the supposed dead should be treated as living, and nothing done that would pain or hurt them if alive.

The New York Medico-Legal Society. — At the annual meeting of the New York Medico-Legal Society, held November 16th, the following officers were elected for the ensuing year: President, Albert Bach; First Vice-President, F. B. Downs; Second Vice-President, George W. Grover; Recording Secretary, Clark Bell; Corresponding Secretary, Moritz Ellinger; Treasurer, Thomas Darlington; Chemist, C. A. Doremus. A paper on "Yellow Fever in Cuba" was read by Dr. M. Ferrer, a native, in which the author expressed his conviction that it was possible to eradicate the pest from the island; and a paper on "The Conduct of the Santiago Campaign from a Medical Standpoint," by Dr. George Goodfellow, a member of General Shafter's staff during the war, was also presented.

Rapid Disposition of a Murder Case. — On November 14th there occurred what is said to have been the most rapid disposition of a murder case ever made in a New York County Court, in the Criminal Branch of the Supreme Court. William Frane was charged with killing his employer, Julius Smith, in July last, in the latter's restaurant, and Drs. Campbell and Van Santvoort presented evidence proving the man insane. Justice Gildersleeve, who was on the Bench, ordered him to be sent to the Hospital for Insane Criminals at Matteawan, and the entire case consumed but eighteen minutes.

A Gastrotomy on a Horse. — What is probably the first gastrotomy operation on a horse was recently performed by Dr. George A. Crowin, a veterinary of East New York. The stomach was opened for the purpose of removing a silver watch and some coins which had accidentally fallen from a stableman's pocket in the loft above into the animal's manger, and were swallowed with its fodder. The operation was entirely successful, and it is recorded that the watch continued to go for an hour after being swallowed.

The New York Society for the Relief of Widows and Orphans of Medical Men. — This society was organized in 1842. The fifty-seventh annual statement shows that the funds now amount to $230,781, yielding an annual income of $10,518. The members of the society now number 138, of whom 108 are life and 30 annual members. The

number of benefactors living, 11, of whom 3 are laymen; deceased, 46, of whom 9 were laymen. The society has extended aid to 17 widows and 6 children of deceased members during the past year.

A DECREASED MORTALITY. — In the four weeks ending October 29th there was a considerable decrease in the mortality of the city as compared with the four weeks preceding, the average number of deaths per week representing an annual death-rate of 17.62, against 22.18 during the four weeks ending October 1st. It is noticeable that the death-rate in the weeks ending October 15th and 22d was exactly the same, namely 17.30. The most marked decrease in mortality was, naturally, with the advance of the autumn season, in the class of diarrheal diseases, the weekly average of deaths from which was 63.75, against 196.75 in the four weeks preceding.

ST. JOHN'S GUILD: A NEW FLOATING HOSPITAL. — At the annual meeting of St. John's Guild, held November 9th, it was shown that between July 6th and September 10th the summer work accomplished was in brief as follows: 60,144 children and their mothers treated on Floating Hospital; 11,403 baths given on Floating Hospital; 2,507 children and their mothers treated at Sea Side Hospital, 17,350 days of hospital treatment; 216 children treated at Children's City Hospital, 6,501 hospital days; 1,959 children attended by Special Relief Department, and 6,464 visits made. The daily average attendance on the Floating Hospital trips was 1,273. On account of the increasing needs of the city in its consolidated form it was explained that an additional floating hospital was imperatively demanded, and the construction of one was determined upon. The estimated cost is about $35,000, and special efforts will be made to raise the required sum and have the new boat ready by the first of July next.

Miscellany.

THE BACILLUS ICTEROIDES.

IN the preliminary report, just published (November 11th) by the Marine-Hospital Service of medical officers detailed by direction of the President as a commission to investigate in Havana the cause of yellow fever, Surgeon H. D. Geddings states:

"Experiments had been begun upon the toxins of the bacillus icteroides, both precipitated and liquid, when it became necessary to suspend the work in Havana and to return to the United States on the 15th of March, 1898, since which time further investigation has been prevented by other duties in connection with epidemic work in the Southern States.

"It is here necessary to say a few words in connection with the claim of identity of the bacillus icteroides of Sanarelli and the bacillus "X" of Sternberg, which has recently been made. It is inconceivable to my mind how such a claim can be sustained by any one who has carefully studied and differentiated the two organisms. The bacillus "X" is coarser, longer and stouter than the bacillus icteroides; originally quite motile when isolated in Havana several years ago, it is now an organism, hardly as motile as the ordinary colon bacillus; in its growth it produces fermentation in both lactose and glucose agar, with a gaseous product quite similar in composition to the products of the colon bacillus; it produces acid in its growth; its production of indol is well marked and excessive, and lastly it readily coagulates milk. Indeed it would seem that the bacillus "X" is simply and solely a well-marked and accentuated colon bacillus. It is pathogenic, to be sure, for rabbits, guinea-pigs and other of the lower animals, but the time has long since passed when the colon bacillus can be considered as harmless and non-pathogenic.

"It has also been objected that the bacillus icteroides too closely simulates the colon bacillus. To this it can only be said that in its characteristics of growth as previously detailed in this article there is a wide difference, nor is its similarity nearly so great as is that of the bacillus typhosus to the bacillus coli communis. The bacillus icteroides (Sanarelli) produces toxins, precipitable by ammonium sulphate, of well-marked intensity and potency, much more so than the toxins precipitated from bacillus "X" and ordinary colon bacillus.

"The agglutination and arrest of motility experiments of Archinard and Woodson would seem to make the argument in favor of the pathogenicity of the bacillus icteroides all the stronger.

"In concluding this preliminary and independent report, which would indicate that the bacillus icteroides of Sanarelli is the specific agent in the causation of yellow fever, I would beg to recommend that opportunity be given for further experimentation on lower animals with its toxins, and with cultures if necessary, and that both be tested in connection with the antiamarillic serum prepared according to the methods of Sanarelli."

The two members of this Commission who were forced to abandon Havana on account of the war and have since been on duty in the Southern States have now been ordered to return to Havana and continue their investigations, their laboratory having been undisturbed during the war.

THE "TRIPOD OF LIFE."

APROPOS of the imminence of the season for inaugural addresses, the *British Medical Journal* for September 24th makes the following apposite remarks on the frequency with which stock phrases are misquoted, misapplied and ascribed to wrong authors.

"We do not," says the editor, "wish to add to the anxieties of those who will go through the fatiguing duty of haranguing a medical school early next month, but we may win some gratitude by reminding them of Dr. Gee's warning in the current volume of the *St. Bartholomew's Hospital Reports* as to the use of the term 'Tripod of Life.' A mistake about the authorship of a phrase is not serious, and it is quite allowable for the lecturer to say, 'as a great authority has remarked,' or, if very uncertain, 'as has been said.' But the term itself must be expressed correctly — that is, literally, or, at the most, with such grammatical modifications as will not alter its sense. The

lecturer, too, must never modify the original application of the term, except on his own responsibility, openly declared before his audience. The 'tripod of life' is a phrase which has been particularly ill-handled in the way above indicated. Dr. Gee quotes Huxley's remark in his well-known 'Elementary Physiology.' 'These three organs,' says the great biologist, 'the brain, the lungs and the heart, have been fancifully termed the tripod of life.' Many of us, we suspect, think that Huxley was the actual inventor of the term. He admits that it is otherwise; unfortunately his quotation is not only incomplete, but also inaccurate. This was not Huxley's fault, as Watson, from whom Huxley seems to have taken the term, falls into the same error. Watson, in turn, must not bear all the blame, as he apparently quotes Lænnec. It happens that Lænnec was a pupil of Bichat, who taught that all kinds of sudden death begin by the interruption of circulation, respiration and the functions of the brain. Lænnec seems to have compounded his master's teaching with a sentence in Bordeu's *Recherches sur les Maladies Chroniques:* 'The brain, the heart and the stomach are thus the triumvirate, the tripod of life.' Elsewhere in the same work Bordeu writes: 'The head, the epigastric and precordial regions, three important centres, and the true tripod of life' (*trépied de la vie* are the original words in both sentences). Let the inaugural lecturer remember the above remarks and thank Dr. Gee; let him take warning as to other phrases, and make sure that he quotes them accurately after finding their original source. For in this instance, let it be noted, the inventor of the phrase made the stomach, not the lungs, one of the legs of the tripod, contrary to what is represented by those who now speak of the 'tripod.'"

THERAPEUTIC NOTES.

Treatment of Tuberculosis by Medicated Serums. — In accord with Grancher's view, that the two necessary factors for the development of tuberculosis are a low state of nutrition in the organism and the presence of bacilli therein, Berlioz [1] considers strengthening of the organism as the principal treatment. With this in view, he utilizes the normal serum of the blood of an ox (said to possess the property of stimulating nutrition), into which he incorporates the anti-tuberculous remedy, namely, phosphate of guaiacol. He also adds to his serum the extracts of various organs, as the testicle, liver, spleen, cerebrum, lungs, thus combining serum-therapy with opotherapy. The employment of these serums, which are administered as injections in the quantity of one ounce per day, produced chiefly two results: (1) an increase in the patient's weight (in one case twelve kilogrammes in three months, in the other four kilogrammes in fifteen days), and (2) an increase in the amount of the excreted urea, which doubled or even quadrupled. Alongside with the general improvement, the cough, the expectoration and the sweating were also relieved; there was at the same time some amelioration in the local symptoms. The treatment must be continued for weeks or even months. Acute tuberculosis is no contraindication. Berlioz cites two cases in which an increase in weight took place, notwithstanding the fever, while the local lesions retrogressed considerably by the end of two or three months.

[1] Munch. med. Woch., October 4, 1898.

For Alopecia (Basil).

℞ Acidi hydrochlor. 3i
Alcohol 3iv
Sig. Rub into the affected parts every evening on retiring to bed.

Mental Diseases. — In discussing the treatment of mental diseases by hydrotherapy and balneotherapy, Dr. Thomsen [2] draws, among others, the following conclusions: (1) We possess, as yet, no exact hydrotherapy for mental diseases, because, on one hand, the anatomo-pathological processes underlying the causation of these diseases are not known exactly, while, on the other hand, we are as yet at sea regarding the physiological effects of the application of many hydrotherapeutic procedures. (2) Strong douches, low temperature, and similar pronounced measures are to be avoided. (3) In the acute psychoses, which are characterized by excitability, as mania, exhaustive psychosis, etc., systematic hydrotherapy, intelligently employed, is of great importance. Warm baths, if used regularly and repeatedly, tend to quiet excitability and induce sleep; the same applies to all those cases for which a moist pack acts as a quieting factor; the choice between the pack and the warm bath will depend on the condition of the patient's strength, his idiosyncrasies, his opposition to one or the other of the measures, etc. (4) For apathetic, stuporous and generally indifferent patients, next to the warm bath, the half-bath, followed by cool sponging, is the most effectual means of influencing favorably the circulation and metabolism.

[2] Cong. de la tuberculose, 1898; Bulletin général de Thérapeutique, September 15, 1898.

Correspondence.

PROFESSORSHIPS OF MILITARY MEDICINE.

South Boston, November 21, 1898.

Mr. Editor:—Apropos of the many criticisms of the management of the medical department in the Spanish-American war, as one who has served in Southern camps for five months, I would suggest that the best way to approach perfection in military medicine and surgery would be to establish a chair on these branches in every reputable medical college in this country. The different branches of these subjects, including hygiene, transportation of the injured, the management and organization of field hospitals, red-tape of the service, etc., could be taught to all medical students by a course of lectures extending over one year. Even though the knowledge thus gained was never used, it would be no burden to carry and would prove useful in civil practice.

The knowledge of army red-tape would give the student an insight into methods which would be of some benefit to him in conducting his ordinary business affairs.

When the tocsin of war sounds again it should find the medical profession, as a body, ready to render its best assistance, without the preliminary training which is now required in order to do effective work. In the late war our profession as a whole did noble and conscientious work, and whatever may have been lacking in its effectiveness was not due to ignorance and incapacity as far as ordinary professional duties were concerned, but to inexperience in military medicine. Hoping that another year will find Harvard taking the lead in establishing a chair on this important branch, I remain

Yours respectfully,

William H. Devine, M.D.,
Late Major and Acting Chief Surgeon,
2d Division, 2d Army Corps.

SOCIETY NOTICE.

THE BOSTON MEDICAL LIBRARY.—A meeting of this Society will be held at 19 Boylston Place, Tuesday, November 29th, at 8 P. M., to consider the question of raising funds for a new building.

All members of the profession are cordially invited to attend.

O. F. WADSWORTH, M.D., *Secretary*.

RECENT DEATHS.

THOMAS RUNNELLS CLEMENT, M.D., M.M.S.S., died at Osterville, September 24, 1898, aged seventy-five years.

WILLIAM NEWCOMB STONE, M.D., M.M.S.S., died in Wellfleet, October 17, 1898, aged fifty-three years.

BOOKS AND PAMPHLETS RECEIVED.

A Simple and Rapid Method of Detecting Tubercle Bacilli in Fluids. By E. W. Hammond, Montreal.

The Twenty-ninth Annual Report of the State Board of Health of Massachusetts. Boston: Printed by the State. 1898.

A New Dissection showing the Internal Gross Anatomy of the Hippocampus Major. By J. G. M'Carthy, M.D., Montreal. Reprint. 1898.

On the Stages and Forms of Syphilis, with more Especial Reference to the Hepatic Manifestations of the Disease. By J. G. Adami, M.A., M.D., F.R.S.E., Montreal. Reprint. 1898.

On Resection of the Gasserian Ganglion, with a Pathological Report on Seven Ganglia removed by Professor Keen. By W. W. Keen, M.D., LL.D., and W. G. Spiller, M.D., Philadelphia. 1898.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series Vol III. C. Czygan. Washington: Government Printing Office. 1898.

An Epitome of Human Histology for the Use of Students in Connection with Lectures and Laboratory Work. By Arthur W. Weysse, A.M., Ph.D., Instructor in Biology, Massachusetts Institute of Technology, Boston, U. S. A. New York, London and Bombay: Longmans, Green & Co. 1898.

Descriptive Catalogue of the Anatomical and Pathological Specimens in the Museum of the Royal College of Surgeons of Edinburgh. By Charles W. Calheart, Conservator; Fellow of the College. Vol. II. Diseases of the Skin, Nervous System, Eye, Alimentary Canal and Urinary Organs. Edinburgh: James Thin. 1898.

A Primer of Psychology and Mental Disease, for Use in Training Schools for Attendants and Nurses in Medical Classes. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital for Nervous and Mental Diseases. Flint, Mich., etc. Second edition, thoroughly revised. Philadelphia, New York and Chicago: The F. A. Davis Co. 1898.

A Manual of Otology. By Gorham Bacon, A.B., M.D., Professor of Otology in Cornell University Medical College, New York; Aural Surgeon, New York Eye and Ear Infirmary. With an introductory chapter by Clarence John Blake, M.D., Professor of Otology in Harvard University. With 110 illustrations and a colored plate. New York and Philadelphia: Lea Brothers & Co. 1898.

Pathology and Morbid Anatomy. By T. Henry Green, M.D., Lecturer on Pathology and Morbid Anatomy at Charing Cross Hospital Medical School, London. New eighth American from the eighth and revised English edition. In one very handsome royal octavo volume of 600 pages, with 215 engravings, many being new, and a colored plate. Philadelphia and New York: Lea Brothers & Co. 1898.

Practical Diagnosis: The Use of Symptoms in the Diagnosis of Disease. Third edition, revised and enlarged by Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital, etc. Illustrated with 204 engravings and 13 colored plates. Philadelphia and New York: Lea Brothers & Co. 1898.

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania; Fellow of the American Academy of Medicine, etc. Containing the pronunciation and definition of over 26,000 of the terms used in medicine and the kindred sciences, along with over 60 extensive tables. Philadelphia: W. B. Saunders. 1898.

A Manual of Venereal Diseases. By James R. Hayden, M.D., Chief of Clinic and Instructor in Venereal and Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Visiting Genito-Urinary Surgeon to the New York City Hospital; Assistant Visiting Genito-Urinary Surgeon to Bellevue Hospital. With 54 illustrations. New York and Philadelphia: Lea Brothers & Co. 1898.

The Human Body, A Text-Book of Anatomy, Physiology and Hygiene, with Practical Exercises. By H. Newell Martin, D.Sc., M.D., M.A., F.R.S., formerly Professor of Biology in the Johns Hopkins University and of Physiology in the Medical Faculty of the same. Fifth edition, revised by George Well Fitz, M.D., Assistant Professor of Physiology and Hygiene in Harvard University. New York: Henry Holt & Co. 1898.

A Treatise on Diseases of the Ear, together with a Brief Sketch of the Anatomy and Physiology of this Organ. By Albert H. Buck, M.D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons, Medical Department of Columbia University, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary and the Presbyterian Hospital. Third revised edition. New York: William Wood & Co. 1898.

Text-Book of Medical and Pharmaceutical Chemistry. By Elias B. Hartley, B.S., M.D., Ph.G., Professor of Chemistry and Toxicology in Long Island College Hospital; Dean and Professor of Organic Chemistry in the Brooklyn College of Pharmacy; late Consulting Chemist to the Department of Health of the City of Brooklyn, etc. Fifth edition, revised and enlarged. With 96 illustrations. Philadelphia: P. Blakiston's Son & Co. 1898.

Practical Uranalysis and Urinary Diagnosis; A Manual for the Use of Physicians, Surgeons and Students. By Charles W. Purdy, M.D., LL.D., Queen's University, Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Clinical Medicine at the Chicago Post-Graduate Medical School, etc. Fourth revised edition with numerous illustrations, including photo-engravings and colored plates. Philadelphia: The F. A. Davis Co. 1898.

Scorbutus in Infants; Some California Cases. Erasion of the Knee in Children, with Conservation of the Epiphyseal Cartilages. Questions in the Treatment of Congenital Dislocations of the Hip. Traumatic Dislocation of the Hip in Children, Old and Recent. A Preliminary Report on the Treatment of Congenital Dislocation of the Hip by Operative and Manipulative Methods. By Harry M. Sherman, A.M., M.D., San Francisco, Cal. Reprints. 1897-98.

Manual of Diseases of the Skin, with an Analysis of Twenty Thousand Consecutive Cases and a Formulary. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital; Dermatologist to the Randall's Island Hospitals; Consulting Physician to the New York Hospital; Hospital for Ruptured and Crippled and Manhattan Eye and Ear Hospital. Fourth edition, revised and enlarged. New York and London: G. P. Putnam's Sons. 1898.

A Pocket Medical Dictionary, giving the Pronunciation and Definition of the Principal Words used in Medicine and the Collateral Sciences, including very Complete Tables. By George M. Gould, A.M., M.D., Author of "The Illustrated Medical Dictionary," "The Student's Medical Dictionary," Editor of the Philadelphia *Medical Journal*, etc. A new edition, entirely rewritten and enlarged, including over 21,000 words. Philadelphia: P. Blakiston, Son & Co. 1898.

Saunders' Question Compends, No 7. Essentials of Materia Medica, Therapeutics and Prescription Writing. Arranged in the Form of Questions and Answers, prepared especially for Students of Medicine. By Henry Morris, M.D., Fellow of the College of Physicians of Philadelphia; Honorary Member of the Altonia Academy of Medicine; Member of the Pathological Society of Philadelphia, etc. Fifth edition, revised and enlarged. Philadelphia: W. B. Saunders. 1898.

Quiz Compends, No. 5; a Compend of Obstetrics, Especially Adapted to the Use of Medical Students and Physicians. By Henry G. Landis, A.M., M.D., late Professor of Obstetrics and Diseases of Women in Starling Medical College. Revised and edited by William H. Wells, M.D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Instructor in Obstetrics in the Jefferson Medical College, etc. Sixth edition, illustrated. Philadelphia: P. Blakiston, Son & Co. 1898.

The Care of the Baby, a Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and in Disease. By J. P. Crozer Griffith, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Physician to the Children's Hospital, to the Methodist Episcopal Hospital and to the St. Agnes Hospital, Philadelphia; Member of the American Pediatric Society and of the Association of American Physicians. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

Contributions to Orthopedic Surgery. By A. Sydney Roberts, M.D., late Surgeon to the Philadelphia Hospital; Orthopedic Surgeon to the Out-patient Department in the University Hospital; Instructor in Orthopedic Surgery in the University of Pennsylvania; Out-patient Surgeon to the Episcopal Hospital, etc. With a brief biographical sketch by James K. Young, M.D., Professor of Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery, Woman's Medical College of Pennsylvania; Instructor in Orthopedic Surgery, University of Pennsylvania; Assistant Orthopedic Surgeon, Hospital of the University of Pennsylvania. Philadelphia. 1898.

Original Articles.

DISTRICT-VISITING NURSING IN OBSTETRIC PRACTICE.[1]

BY A. WORCESTER, M.D., WALTHAM, MASS.

Thirty years ago Dr. H. R. Storer eloquently pleaded for the introduction of trained nurses.[2] There were then in this country no training schools, neither was there any generally recognized need of trained nurses. And even nowadays in midwifery practice the necessity of first-rate nursing service is not sufficiently recognized, or, if so, the efforts made to supply the need are wofully ineffective.

True, the rich have trained nurses in their fashionably infrequent confinements, perhaps in waiting for a month beforehand and in service as nursemaids for three months afterwards. And many moderately well-to-do families half bankrupt themselves to pay to the trained nurse more per week than the bread-winner of the family earns. But for the poor and the average wage-earning classes there is yet almost no provision of proper nursing services; probably not one woman in fifty in this State has a trained nurse in her confinement.

The supply of trained obstetric nurses is still pathetically small. And so long as most training schools persist in ignoring this necessary branch of a nurse's training it is not unlikely that the nurses' registries will continue overloaded with unemployed nurses and that the greatest need of trained nursing will continue unsupplied.

If most of the medical schools likewise ignored midwifery very probably graduates in medicine would have less to do and most certainly women in labor would manage to get on without them. Even in this age of specialists a general education in all the different branches of medicine is deemed essential, and some experience in general practice is deemed advantageous to the physician or surgeon who becomes a specialist. But for nurses a strictly limited and consequently incomplete education is thought sufficient and perhaps even an advantage. Not only do the general hospitals graduate nurses who, for instance, have never seen a case of childbirth, but the specialist hospitals also graduate nurses who, perhaps, have never seen a sick adult, or a male patient, or a case of any of the common contagious or infectious diseases. From the hospital point of view this is all well enough. Specialist nurses are what each hospital wants. But nurses who are specialists, not from preference but from ignorance of every other branch of nursing, are not the kind wanted in general family practice. In the large cities, where families are learning to employ specialists in medicine and surgery, calling first this doctor and then that, according to the anatomical location or supposed pathology of their ills, and where scores of nurses card-catalogued according to their specialities are patiently waiting for work, the grotesqueness of the present conditions is not fully appreciated. But in the smaller towns and in the country, where specialists do not thrive, the old-fashioned untrained nurses are in little danger of being supplanted by graduate nurses who are either unable or unwilling to take cases as they come. I believe the same is also true as regards the large bulk of the population of cities. In general family practice trained nursing is not likely to be common until nurses are properly trained for such service, and this desirable result will not be attained until training schools are established and managed with the primary purpose of educating nurses for the general practice of their profession. In view of the recent introduction of trained nursing in this utilitarian country, it is not strange that educational ideals have been made secondary to the needs of the hospitals where training schools have been established, and that hospital nursing has consequently advanced to its present overweening importance. But it is remarkable that trained nurses themselves should continue so ignorant of the history of their own profession and so oblivious of other and equally important departments of nursing as to rank themselves according to the number of beds in the hospitals where they were trained. To such length has this folly gone that the Association of Training School Superintendents admits to membership only such as have been trained in hospitals of over fifty beds, unmindful of the fact that by such a test many of the greatest nurses living — even Florence Nightingale and Elise Aberdieck — are ineligible. With such false standards flaunted before them what hope is there of abatement of the insufferable hospitalism that now hinders many graduate nurses in making their way in private nursing!

In Germany, where the modern profession of nursing began, the great training schools still control and operate the hospitals in which the student nurses receive that part of their training. In Great Britain the matron of the hospital is the real as well as the nominal head of the whole institution. Only great teachers of nurses are given these matronships, and in the training schools under their leadership the profession of nursing steadily advances. In this country most training schools are mere adjuncts of the hospitals, designed and managed solely for them, indeed, some of the smaller hospitals are in part supported by the student-nurses' earnings in private service. The cart is before the horse, and if not going backwards at least no general advance is being made in our system of training nurses.

Among the graduate nurses, however, there are many encouraging signs of awakening professional spirit, which will most surely lead to higher educational ideals. The medals and diplomas of their own particular schools mean far less to the graduates of to-day than to those of a few years ago. Post-graduate courses for nurses in the specialist hospitals as fast as introduced are flooded with applications. Clinics and lectures for graduate nurses are multiplying and improving.

In Canada there is now being established, in commemoration of Queen Victoria's Diamond Jubilee, an order of District-visiting Nursing that promises to be of immense advantage to the profession of nursing. In this Victorian Order nurses who have been graduated from approved training schools will be trained in the art of district-visiting nursing, which is as different and distinct from hospital nursing as general family practice of medicine is different from practice in the wards and amphitheatre. The underlying principles in both are, of course, the same, but the methods and means employed bear slight resemblance to each other. For this very reason extra training in district-visiting nursing, as now offered in Canada, will bring into due

[1] Read before the Obstetrical Society of Boston, May 17, 1898.
[2] Nurses and Nursing.

prominence the essentials of the art. After such a course nurses will be less bound to fads and more willing to believe there may be several other equally good ways of working besides their own.

Not least among the advantages of the Victorian Order will be the establishment of an educational standard for training schools. Graduates from only such schools as are approved will be accepted as probationers of the Order. And schools that fall below will thus be forced to rise to the standard required.

But the chief advantage of the Victorian Order is the rescue of district-visiting nursing from its present obscurity. Henceforth, at least in Canada, it will receive deserved attention. And it is greatly to be hoped that in the United States also more attention will be paid to this too neglected department of nursing.

There are, it is true, a few district nursing stations in some of our cities, and, doubtless, some of the visiting nurses in such employ have picked up some parts of the art. But there is no instruction given in this department of nursing in the large training schools. And so little is this great lack appreciated that graduates of such schools have offered their services as teachers of district-visiting nursing and as superintendents of the recently established stations in Canada. Such sublime self-confidence is ahead of the Irishman's who was sure he could play on the violin although he had never tried; but he did not offer himself as a teacher.

In the large training schools little change need be expected. They serve their hospitals admirably, and admirable hospital nursing is all that is there wanted. Hope for the professional improvement of nursing rests upon the development of the smaller schools, which, not being fast bound to the service of large hospitals, may follow more and more faithfully high and truly educational ideals. Fortunately in the training schools connected with small hospitals hospital nursing cannot overshadow other branches of nursing. And as these small schools are rapidly increasing in number, and as their student nurses even now in this State outnumber the student nurses of the large hospital training schools, the time perhaps is not far off when graduate nurses will no longer rank themselves by the size of the hospitals which own their respective schools, but rather by the educational breadth and thoroughness of the training given therein.

In the more general training, that is of necessity given in the smaller schools, neither obstetric nursing nor district-visiting nursing is slighted. Indeed, both branches are taught simultaneously; for a large part of the visiting nursing is for obstetric service, where is afforded the best possible opportunity for teaching to student nurses the art of obstretic nursing.

Having for the past thirteen years devoted much time to this kind of teaching I venture to submit this outline of what I try to teach.

The first principle of district-visiting nursing is the adaptation of service to the needs of the family, and thus securing the willingness of the family and patient to accept such service. This implies the carrying out of one's method of nursing only so far and so fast as can be done without provoking opposition.

PREPARATION OF THE LYING-IN ROOM AND BED.

There will always be found too much furniture in the room to be prepared for labor, as the room will have been used for other purposes. The nurse should have an idea of what the room should contain before she enters, and then as she moves about, by making little changes here and there the room will get nearer and nearer to the best possible condition for labor. Getting out of the room the useless furniture I put first in the process of making ready, and storing it in that part of the house through which it will not be necessary to run a few minutes later. Rocking-chairs are a special abomination but bric-a-brac is worse. A table with a bare top should be ready for the doctor's use when he comes. The top should be clean, or if altogether too dirty it can be made fit for use by spreading newspapers or clean cloth over it. The blinds should be open, if it is daytime, and newspaper curtains should cover the sashes if windows of opposite houses command the room. Plenty of light is more often lacking in the daytime than at night when artificial light can be had, and good light is sometimes of life-saving importance. The right side of the bed should be accessible and should receive the greatest supply of light. The protection of the carpet often fails. It is easy to spread papers over it but hard to make the papers stay in place. A low tub or some such vessel underneath the bed is the best protection. It can be pulled out to project a little where and when it is wanted.

A suitable narrow bed can seldom be had. Sometimes a little cot-bed may be found for the labor and the other bed used for the patient afterwards. The beds we find in district-visiting work are generally unsuitable in every way. The most expensive part of the bed is generally the mattress, not so much so among the people of some nations as of others. A feather bed is a very expensive thing; a hair mattress is also expensive, and the cheapest kind is too valuable to let it be damaged needlessly. It is very essential to protect the mattress from liquids soaking into it, so the best protective obtainable should be used for this purpose, especially on the right side of the bed. Stout wrapping paper is almost as good as a rubber sheet. Newspapers are better than nothing. The under sheet should be drawn smoothly and carried well under the right side of the bed. The draw-sheet should likewise be tucked well under the mattress on the right side and also fastened in some way on the left side of the bed. If not long enough to tuck under, it may be pinned to the mattress ticking. This much of the bed may be regarded as permanent. For its temporary protection a second draw-sheet should be put on so as to cover the bed and also the right side of the bedstead. In each draw-sheet should be folded either rubber sheeting or some sort of waterproofing.

PREPARATION OF THE PATIENT.

Braiding the hair is quite necessary, especially if the hair is plentiful. When it comes to cleaning the patient it must be remembered that more than half find themselves unable to take care of themselves as pregnancy advances, and to have a young nurse come in and urge a bath upon the patient as preparation for the doctor's visit may offer great violence to her feelings. If tact is used the patient will probably be grateful to be put in order for the doctor's visit. There is no necessity for antiseptic treatment of much of the body. It is impossible to conduct an obstetric case in an absolutely aseptic manner. The body can be made aseptic only by violent chemical agents, such as per-

manganate of potassium and oxalic acid. Soaking in these agents, after soap and nail-brush work, will produce an aseptic condition. But when it comes to sterilization of the vagina and vulva by such extreme precautions as are taken in operating-rooms on patients under ether, in obstetric cases such treatment cannot be thought of. It is sufficient to clean with soap and water between the hips and knees, especially the vulva, inner thighs and nates. Then cloths soaked in corrosive sublimate, 1 to 1,000, should be pressed against these parts instead of scrubbing them. The cleansing enema must not be forgotten. If washed out beforehand, the rectum will at the last discharge only mucus.

The nightdress should be well rolled up and pinned under the right arm. If a shirt is worn it should also be fastened up in the same way. There is little comfort in a clean nightdress after labor, if the shirt is soaked. The dressing of the patient is completed by tying, at the right-hand side of the patient, a sheet folded over the waistband.

Vaginal examination of patients in labor is absolutely essential in district-visiting nursing. But after graduation nurses are employed more in families where the doctor is expected to be dancing in attendance, and he, rather than the nurse, is depended upon for such examinations. In Waltham, physicians have come to depend upon the nurse's knowing how in this way to keep watch of the labor and to report its progress, while physicians elsewhere can hardly believe that nurses can be depended upon for such work. And indeed, some otherwise fine nurses teach to the contrary, in their ignorance maintaining that such work is not proper for nurses. Nevertheless, the custom will surely grow in spite of what physicians and nurses feel and say. It properly belongs to obstetric nursing. The necessity of physicians running into the house often during labor exists only where the nurse is incapable of informing him when he is needed. At the beginning of the century it was considered outrageous for any man physician to attend women in labor. That was left to the midwives. It was because they were so uneducated that the man obstetrician has come into fashion, but there is no intrinsic fitness in his serving as a watchful nurse at the bedside for forty-eight hours before he is wanted.

In order to examine properly it is necessary first to have the patient way out at the right side of the bed, well over the edge, hips firmly placed, their weight on left trochanter resting firmly on the bed where supported by the sideboard of the bedstead. The left thigh should be flexed forty-five degrees. The right thigh will be steadily supported and properly flexed if the right foot is caught under the hollow of the left knee. With the thighs in this position the axis of the vagina is then in the direction of the left thigh. Thorough scrubbing with soap and water, and afterwards in corrosive sublimate, 1 to 1,000, while it does not prepare hands for handling ligatures or for wringing out sponges for abdominal operations, does prepare well enough for vaginal examinations. There is no need of any lubricant, if the vulva is properly separated by the fingers and thumb of the left hand before inserting the two first fingers of the right hand. Sterile vaseline might be used, but for repeated examinations even that is objectionable because very hard to wash off, and it catches all the dirt it encounters. In separating the vulva for examination, pass the left hand in front between the thighs. Such examinations ought to be made in plain sight of what one is doing. Always enter the vagina posteriorly, keeping well to its posterior wall, with two fingers in line with the long diameter of the vulva from front to back, rotating arm and shoulder as you lean forward over patient, so that the ball of the finger comes forward against the surfaces to be examined by touch. Explore one quarter after another. Remember that what is wanted is mainly information as to the os, the condition of the cervix and the presentation.

If the physician has not already visited the patient, the nurse as soon as possible after her arrival at the case should send him a note describing the condition of the patient and the progress already made. Unless otherwise instructed it is her further duty in normal cases of labor to send for the physician when the first stage is nearing its end. The nurse is therefore responsible for the proper summoning of the physician, and in the mean time for the assurance to patient and physician that all the conditions are normal. Proper training and experience amply qualify the nurse for this service.

I pass over the nurse's duties during the second and third stages of labor, as the physician's assistant or, in case of his absence, as his lieutenant. I have already attempted to do that.[3] And in this paper I want to set forth the especial duties of the district nurse in midwifery service.

In washing up after labor no intra-vulva washing is permissible. The line between the mucous membrane and the skin limits the nurse's service. Any intra-vulva cleaning must be done by the physician or under his orders. I remember some years ago a nurse's being called to account very severely by one of our famous obstetricians because on the labia minora, when perineal stitches were being removed later on, was found some of the vernix caseosa. That nurse would now be applauded. It would be officious and reprehensible for the nurse to attempt to scrub off that tenacious stuff. What better dressing could be applied? The line limiting the nurse's province may be found by holding the labia majora together while washing the vulva. In this way thorough cleansing can be effected without hurting or harming the patient.

If the bed has been properly made and the patient properly prepared it is astonishing how little needs to be done afterwards in removing every trace of the labor. After washing the patient and once rolling her half over, the sheet-skirt and the provisional draw-sheet can be removed, the binder and napkin applied, the nightdress brought down into place and all this in a very few minutes. I need not picture the confusion, the fuss and bother to all concerned where the clothing of both patient and bed has all to be changed. Nor can I now consider the great advantages to the baby in being first washed and dressed by a nurse who among other things knows enough *not* to fill its eyes with soap-suds, nor to stick the belly-band pins through its skin and then to give it gin to stop its howling. But let us hurry on to the consideration of the blessings to both mother and child that the district nurse can bring on her after-visits.

Were it necessary for the poor woman to choose between the service of a district-visiting nurse for an hour or so each morning for the week of her con-

[3] Monthly Nursing. D. Appleton & Co., N. Y.

finement and the calls of the physician, there can be no question which she should choose. For almost all the skilled nursing she needs can be given her on such calls, and for her care during the rest of the time she can safely depend upon her sister or daughter or friendly neighbors. Indeed it is in the instruction of these helpers that the district-visiting nurse has almost her greatest opportunity for good. They can be taught how to make the gruel and broth, how to dress and undress the baby, and how to do the thousand and one services needed in the lying-in room.

The especial service of the trained nurse in confinement cases lies in precaution-taking, in the prevention of troubles. But for this it is not necessary that she shall be on constant duty at the case. It is enough, for instance, in the proper care of the nipples and breasts if she teaches the patient how to bathe and anoint the nipples, and if at the proper time she bandages the heavy breasts. And so in the care of the bladder. If eight or ten hours after the labor the nurse visits the patient and helps her to empty her bladder, the danger of retention and catherization is much diminished. The same is true in the care of the rectum. And indeed, over the whole range of the lying-in period, most of the usual suffering and trouble can be prevented by proper nursing and most of this advantage can be had where only district-nursing visits can be afforded.

To the very poor woman who otherwise could not have any nursing and at most only the occasional help of a kindly neighbor, the district nurse comes as an angel from heaven. During her labor she need not suffer the inquisition of the neighborhood, and during the following days she can at least rest in bed.

But, after all, it is not only to the very poor mothers and babies that district-visiting nursing comes as a blessing. It is neither for the submerged tenth, who cannot have either the luxuries or the necessaries of life, nor for the sublimated tenth of the population who can have everything except contentment, that there is the greatest need for planning improvements. Our chief responsibility is rather to the great middle class of self-respecting families of moderate means who pay for everything they have and yet can afford but few luxuries. To such families the maternity service of district nursing is indeed a boon. Instead of the cheap, untrained nurse, who fails both as nurse and house servant simply because she tries to serve in that dual rôle, a perfectly trained nurse can be had for the labor and for the few hours on following days, that is, for only such time as trained nursing service is needed. By paying full price to the district nurse by the hour; and by paying servant's wages to a servant, the total cost is less than for the service of even the cheapest kind of nurse who undertakes to do everything.

Inasmuch as in district-visiting nursing there is such grand opportunity for acquiring experience, which after all is the professional nurse's real capital, nurses are very willing to work in it for far less money return than they rightly expect when half their time is spent in waiting and much of the remainder in unnurse-like work or idleness in wealthy homes.

Wherever introduced, this sort of nursing will surely take deep root, because

(1) Nurses themselves recognize the opportunities so afforded for advancing in their profession.

(2) Physicians once accustomed to the assistance of such nursing in their midwifery practice will never be long without it.

(3) Families soon learn so to depend upon visiting-nursing service that the demand for it becomes steady and strong.

A STUDY OF THIRTY CASES OF ANTRAL EMPYEMA.[1]

BY FREDERIC C. COBB, M.D., BOSTON.

THE object of this paper is to study a series of cases of antral disease as to cause and treatment. The etiology is, of course, of the greatest interest since upon it hinges the prospect of cure. The antrum has always been considered a most intractable cavity, and we find in cases cited during the last ten years that surgeons have made wide openings in it, and even removed the bony walls in order to bring the mucous membrane of the two sides in apposition to each other, and thus stop suppuration. From my experience in these cases, I believe that the antrum is one of the most readily healed of cavities, if the cause of the suppuration is removed. This theory was invariably borne out in all cases due to dental causes. Even cavities which had suppurated for months healed in a few weeks with no other treatment than cleansing washes. One of the most surprising things to me has been the fact that teeth with diseased crowns but perfectly sound roots, as proved after extraction by the dentists, may give rise to antral empyema, since after their removal the disease promptly subsided. To this fact Grünwald alludes in his book "Die lehre von der Nasenhohlen Eiterungen." It is a practical point in the treatment of cases of dental origin to instruct the patient, where removal of a tooth is necessary, to bring to his physician the tooth after its extraction by the dentist, that he may see for himself that no root remains to keep up irritation. Where no tooth appears to be the cause of the empyema the x-ray will afford us valuable information as to the existence of old carious roots in the alveolus. I have seen two cases, one in which the dentist himself, after extracting a tooth, found some weeks later that he had left behind a small root, and another instance in which, although it gave no sign in the alveolus of its presence, such a root remained after extraction of the tooth by a dentist of good reputation. In spite of a long course of treatment the antrum failed to improve until on visiting a second dentist, while under treatment for another tooth, the former root was discovered and extracted, with immediate relief to the empyema. Such tooth roots will, I am informed by the dentist, sometimes work their way downward and outward very much as any foreign body in the tissues, and finally cause a projection which can be felt or seen in or above the alveolar process. Two of the dental cases should perhaps be ranked under foreign bodies in the antrum rather than as purely dental cases, although their cause was plainly attributable to the teeth. These, I think, are of sufficient interest to be individually described.

Miss C. came to me in March, 1896, referred by a very good dentist, who had washed and treated the antrum for some time through an empty tooth-socket. The history she gave was of a severe cold contracted about a year before, which had continued

[1] Read (by title) before the Society of Rhinology, Otology and Laryngology, at Pittsburgh, May, 1898.

up to the present. On inquiry as to the teeth, it was learned that a second molar had given her pain at about the date of the beginning of her cold. The dentist had filled the tooth, and her nasal discharge which was bilateral, but rather more marked on the corresponding side, began soon after this and lasted all summer. In the fall the tooth was extracted and the antrum washed through the empty tooth-socket by the dentist into whose hands she then came. The antrum, however, showed no signs of healing, and in March of the next year she was sent to me. A careful examination of the teeth failed to show any imperfect ones. The socket of the second molar was empty and communicated with the antrum. Pus was seen oozing from under the middle turbinated bone. The odor was foul and very offensive to the patient. No signs of ethmoiditis were found, and she improved rapidly on thorough flushing of the antrum with antiseptics, but at once relapsed when treatment was discontinued. Finally, she brought me a small piece of black, hard substance, which she had passed from the nose, and which on heating gave out the characteristic smell of rubber.

The only means of its introduction into the antrum was evidently through the dental cavity so long ago filled in the now extracted second molar. The rubber must have been injected in a melted condition and passed through an open dental canal into the antrum, solidifying as soon as cooled. The question now arose as to whether more rubber existed in the antrum, and the continuance of the symptoms rendering this probable, a larger opening was drilled in the alveolus, and the antrum was packed with gauze in the hope of entangling in its meshes some more pieces of rubber. The first attempt was unsuccessful, but on second trial the gauze was found to contain several small pieces of rubber similar to that first found.

The symptoms at once began to improve and in a few weeks they subsided, except for a slight irritation caused by the wound. As soon as the opening in the alveolar process healed all symptoms subsided and the patient has remained perfectly well.

A second case, also dependent on dental conditions, is cited because it is unusual, and because it shows that a long-continued antral empyema may subside quickly even after a tedious suppuration. R. H. P. came to the Boston Dispensary complaining of a foul unilateral discharge from the right nostril. Transillumination showed darkness on the right side. Examination of the nose revealed pus in the middle meatus, apparently coming from under the middle turbinated bone. On examination of the teeth the absence of the first molar was noted, and from the jaw above it pus was seen to be oozing. A sinus containing necrosed bone was suspected and a probe passed into the opening found its way into the antrum. As the probe seemed to encounter loose bone the alveolus was opened as near this point as possible, and a foreign body extracted which lay between the alveolar process and the antrum. On removal of this a clear passage to the antrum remained, in size about the diameter of a slate pencil.

This foreign body proved to be a twelve-year molar. As the boy was eighteen years of age and the discharge dated but three or four months back, the interesting question arises as to why the tooth lay so long encysted without having given rise to an emypema. The prompt subsidence of the discharge in this case is another proof of the tendency towards rapid healing of the antrum. In all other cases of carious teeth removal of the tooth was followed by prompt relief. The number of cases due to dental causes, including foreign bodies, was ten, or one-third of the whole number.

Seven cases were due to acute catarrhal conditions, and were characterized by severe rhinitis followed by discharge of muco-pus from one side only. The antrum on transillumination showed dark on the corresponding side while after the subsidence of the discharge it was again bright. An interesting point in this condition is the question whether or not the discharge in such cases is ever foul, as is the case in antral empyema due to bad teeth. In the seven cases mentioned it was not foul, although in one of them a bad taste was noticed. The average duration of these cases was three or four weeks. They required no treatment except cleansing sprays and washes. In one case out of the seven the antrum was washed through an opening in the canine fossa, but this case seemed to subside no more rapidly than the others which were not opened. The question arises in acute inflammation of the antrum whether the disease is primary in that cavity or not. Of course, if the ethmoid cells, as I believe to be the case, often discharge their contents into the antrum through the infundibulum, then these cases may have been acute ethmoid or frontal inflammation. At all events, the antrum, after the process was over, transilluminated as well as that of the other side, showing that it no longer contained purulent material. Another interesting point is the cause of the darkness on transillumination. That this cannot be due simply to the presence of pus is evident from the fact that no change can be noted after thoroughly washing out the cavity. That it is due to thickening of the mucous membrane was proved by microscopical examination of a core of bone removed on trephining the antrum through the alveolar process. The mucous membrane can be seen in the preparation to be enormously thickened, but the cilia remain intact, showing that the process does not necessarily destroy its integrity. The specimen referred to was removed from a patient who had undergone suppuration for more than a year.

Syphilis is a cause always to be considered in questions of antral disease. Of the total number of cases cited, four were undoubtedly syphilitic, and were proved to be so by the immediate effect of antisyphilitic treatment. They have unfortunately passed out of our observation, but were nearly well when last seen. The discharge in such cases is usually very foul, and has the odor peculiar to the necrosing condition of bone, and sequestra from the walls of the antrum or from the lower turbinate are often discharged with the pus. Of the thirty cases only one was maligunant. In this instance the antrum was opened through the alveolar process and curetted, but the hemorrhage was so profuse that suspicion of a malignant growth was entertained, and some of the fragments curetted off were submitted to the pathologist and a diagnosis of sarcoma was returned. The tendency of the opening into the antrum is to close under ordinary conditions, but in cases of malignant growths it tends rather to increase in size, and this enlargement should always awaken suspicion of a malignant process. Marked hemorrhage on curetting should always awaken suspicion of malignancy, as should also the presence of considerable pieces of tissue or bone in the discharge.

Ethmoid disease was associated with antral suppuration in seven cases. Most of these were rebellious to treatment except where marked signs in the region of

the middle turbinate were discovered. In one of these removal of the middle turbinate, which was enormously hypertrophied and polypoid, and carefully clearing out the ethmoid region was followed by complete cure. The antrum became bright again and the discharge ceased without opening into the antral cavity. Microscopical examination of the bone showed the presence of osteoblasts and new-formed osteoid tissue. When this was removed all discharge ceased and the patient has remained perfectly well.

In another case the removal of the middle turbinate was followed by cure, but coincidently one or two teeth were removed, and although these were found to have apparently sound roots, yet they render dubious the effect of turbinotomy. The general conclusion with regard to these cases is that where ethmoid disease complicates antral empyema the prospect of cure of the antrum is dependent on the curability of the ethmoid lesion. In such cases my experience is that it is unnecessary to open the antrum, but that all the attention should be directed to the ethmoid. In obscure cases where antral empyema exists, but where ethmoid disease is doubtful, packing the antrum with gauze and observing whether the discharge ceases or not is a good means of diagnosis. If the pus discharged still continues almost as profuse as before, then the ethmoid region is probably affected, but if it ceases at once we are justified in concluding that the source of the trouble is in the antrum itself.

Of thirty cases only one was plainly due to nasal obstruction. In this instance there was a polypoid growth, on removal of which the discharge and all the symptoms promptly ceased. I have been impressed in the study of these cases with the very large part played by affections of the teeth, and believe that no physician should neglect to have an examination of them made by a competent dentist. If any doubt exists as to the presence of tooth roots in the alveolus the x-ray should be called upon to decide the question. In cases where ethmoiditis, as shown by a cleft in the middle turbinate, necrosed bone in this region, or any other signs of ethmoid disease exist in connection with antral empyema, the former should be treated as the probable cause of the latter.

Syphilis and malignant disease should always be considered as possible factors, and the interior of the nose and mouth should be carefully examined for signs of either. Finally, acute cases not due to the teeth may and do get well without other treatment than cleansing washes, and this may be proved by the test of transillumination when used both before and after the subsidence of the symptoms.

A CASE OF PERNICIOUS ANEMIA COMPLICATED BY TUBERCULAR INFECTION OF THE LYMPH NODES, LIVER AND SPLEEN.

BY FREDERICK L. HILLS, M.D., CONCORD, N. H.,
First Assistant Physician at the New Hampshire Asylum.

THE following case is deemed worthy of record on account of the remarkable degree of anemia and of the unusual pathological findings.

The patient, a widow in her sixty-first year and a native of New Hampshire, was admitted to the New Hampshire Asylum for the Insane, December 6, 1893, with the following history:

Her mother died of cancer, her father of consumption. "Twenty-three years ago she had a tumor and at that time took to her bed." Symptoms of the "tumor" disappeared with the occurrence of the menopause, about which time she began the use of morphine. For twenty-three years she did not leave her bed, although there seemed to be no adequate cause for her invalidism. Upon the withdrawal of the morphine and about ten years before her removal to the asylum, she developed delusions against her husband and the girl who did the housework.

The diagnosis on admission was hypochondriasis.

She was of a cheerful disposition, quite intelligent and hopeful of recovery which she felt must be slow "as any physical exertion irritated the nerve and was very painful," as she expressed it. She had a habit of nodding her head for half an hour or so. This was caused by the nerve, she said, but when any one was about or her attention was engaged, the nodding did not take place. She had incontinence of urine.

She continued in the same frame of mind, and was induced to sit up in a reclining chair for a few hours, two or three times a week. By the middle of January, 1894, her general health had improved and she had gained in flesh. During the following month she made several attempts at walking, but only succeeded in taking five or six steps when supported by a nurse. She soon concluded that exercise was not good for her and gave it up. She then had frequent periods of despondency, but again took courage and in about two months made further attempts in the same line with more success. May 9th, the following entry was made in the case book: "Lately she has improved very much physically, has an excellent color, has gained in flesh and altogether is much better. Her friends were advised to take her home in the hope that the stimulus of a change would incite her to more effort and she was accordingly discharged. At home she improved rapidly. In a few months was able to walk and travel considerable distances without fatigue, visiting friends in Massachusetts and New Hampshire, and was considered remarkably well by her relatives.

About January 1, 1897, she began to be troubled with indigestion and frequently vomited her food, but retained a good appetite and ate heartily. She grew weak, however, and a month later went to bed, being unable to walk or even to stand upon her feet. About this time her daughter first noticed anemia. Four weeks later she refused all food except milk, soft custards and gruel. Her bowels were generally regular; she slept well, had a nervous cough and complained of pain in her back and bowels.

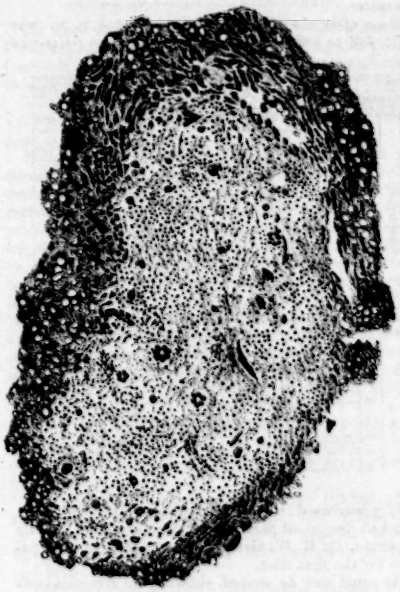
May 1st she was brought to the asylum in an ambulance, being very weak. She seemed stronger than she was willing to admit, helping herself in many ways when the nurses were not around. Unable to stand or sit upright; no paralysis apparent. She was not emaciated; her limbs were plump, and no edema was discoverable. She was very anemic, her skin was dry and of a peculiar parchment hue. Her tongue was coated, large and flabby; she did not retain solid food. Palpation of the abdomen revealed an area of marked hyperesthesia in the epigastrium and pain upon pressure about the umbilicus. The bowels were constipated; she urinated every half hour but had control over the bladder. Lungs gave no abnormal physical signs. Heart was rapid, a little irregular, the apex beat feeble and in normal position; there were no cardiac murmurs.

In the right axilla were four enlarged lymph nodes, varying from the size of a hickory nut to that of an average hen's egg. There were two smaller nodes in the left axilla and those in the neck were slightly enlarged. She said these enlargements had existed for one year and followed an eczema of the right breast.

The urine was slightly increased in amount, pale, specific gravity 1.012, acid in reaction and did not contain albumin or sugar.

At first she retained milk, gruel and soft custards, but vomited all solid or semi-solid food. Later she retained the milk only when given with lime-water.

She was generally cheerful and appreciative, but very hypochondriacal; craved attention and was fearful that the nurses would fail to carry out the physi-



cian's directions. There was an irregular febrile movement from the time of her admission, her temperature ranging during the first three weeks from 98° F. to 101.2° F., only on two or three occasions going above 99.8° F. She was not deluded and until towards the end, her mind was quite clear. She was always hopeful of recovery. During the day she was restless; but would frequently become drowsy and sometimes fall asleep while speaking with the nurse. At night she slept well.

A blood examination on May 8th, at 2 45 P. M., gave

Red corpuscles	501,600
White corpuscles	13,000
Hemoglobin	28 per cent.

There was great inequality in the size of the red corpuscles; some very large, others correspondingly small. No accurate measure of their size was made, but I think the average diameter was greater than normal.

During May she seemed to gain somewhat in strength, but early in June an increasing weakness was apparent, she vomited more frequently and had several slight attacks of diarrhea lasting one or two days.

Blood examination June 12th, at 3 P. M.:

Red corpuscles	223,200
White corpuscles	14,000
Hemoglobin	23 per cent.

She was drowsy, talkative, confused and incoherent. On this and the following days she took and retained nourishment regularly. There was no more diarrhea.

June 14th, blood examination at 3 P. M.:

Red corpuscles	172,000
White corpuscles	12,000

June 15th, blood examination at 3 P. M.:

Red corpuscles	155,200
White corpuscles	14,000

She was growing weaker. For several days there had been an increased dryness of the skin and blotches of brownish pigmentation were noticed over knuckles and wrists.

June 16th, blood examination at 3.30 P. M.:

Red corpuscles	155,760
White corpuscles	20,000

Cover-glass preparations were made June 16th, and stained with the Ehrlich-Biondi triple stain with the following result:

Lymphocytes	12 per cent.
Polymorphonuclear leucocytes	61 "
Mononuclear leucocytes	26 "
Eosinophyles	1 "

Four nucleated red corpuscles were discovered in examining five cover-glasses. They were all of small size with deeply stained nucleus. The contour of the red corpuscles was strikingly good; no poikilocytes were discovered although careful search was made at each examination.

On June 17th she talked pleasantly with her daughter, and although showing a little mental confusion, she was cheerful and seemed to think she was improving. In the evening she slept and at 8 P. M. quite suddenly lost consciousness. Her eyes were turned a little to the left and there was rigidity and semi-contraction in the muscles of the right hand. The pulse could not be felt at the wrist; her respiration failed rapidly, and she died at 2 A. M.

Autopsy. — Eight hours after death. There was a considerable deposit of subcutaneous fat. The largest mass of lymph nodes in the axillæ above referred to was composed of several small nodes adhering together. All were of firm consistency. The bones of the skull were rather soft. Considerable edema was present over the left hemisphere and both frontal lobes of the brain. The costal cartilages were very soft. There was considerable fat about the heart which appeared normal and weighed ten ounces. In the mediastinum were several enlarged lymph nodes, the largest the size and shape of a lima bean. The lungs were normal.

The omentum and mesentary contained a fair amount of fat; no enlarged lymph nodes were found in the abdomen. The stomach and intestines appeared normal to the eye but were not examined microscopically. The liver and spleen contained many hard, yellowish-white nodules from one-sixteenth to three-eighths inches

in diameter, contrasting sharply with the surrounding tissue from which they could be shelled out easily leaving a cup-shaped cavity. The liver was somewhat fatty and weighed sixty-six ounces. Weight of spleen, nine and one-half ounces. It was slightly enlarged and of firm consistency. The pancreas, suprarenals, kidneys and uterus appeared normal. No enlarged lymph nodes in the groins. All the organs were extremely anemic.

Portions of the liver, pancreas, spleen, suprarenals and lymph nodes were sent to Dr. William L. Worcester, Pathologist at the Danvers Lunatic Hospital, Mass., for examination. He returned the following report of the

MICROSCOPICAL EXAMINATION.

Lymphatic Nodes. — These represented the ordinary lesions of caseating tubercle. They consisted mainly of finely granular, structureless substance, staining faintly and diffusely with hematoxylin. Attempts to stain tubercle bacilli in them were unsuccessful.

Liver. — The whitish nodules in the liver were found to consist mainly of spindle-shaped and irregularly polygonal cells. A few giant cells were scattered through them. Nothing was found which could be identified with certainty as blood-vessels, but there were some aggregations of irregulary shaped cells surrounding a lumen, suggestive of a possible circulatory apparatus. There was no appearance of necrosis in any of the nodules examined (see illustration).

The liver cells presented a pretty extensive fatty infiltration.

Spleen. — In this organ nodules were found resembling in the main those described in the liver, though no giant cells were seen in them. There was a large quantity of coarsely granular brown pigment about the trabeculæ.

Remarks. — In view of the evidently tubercular condition of the lymph nodes, the presence of giant cells and the apparent absence of blood-vessels, the nodules in the liver and spleen must, I think, be considered tuberculous, notwithstanding their different appearance from that of ordinary tubercles in these situations. They do not present the character of the lymphoid tumors of Hodgkin's disease.

The pancreas and suprarenals were practically normal.

The question of the possibility of Hodgkin's disease being present had arisen; but the tubercular character of the lesions being thus determined, the diagnosis as given in the title of this report seemed justified.

Clinical Department.

INTESTINAL SUTURE OF TYPHOID PERFORATION; RECOVERY FROM OPERATION; DEATH NINE DAYS LATER FROM THE ORIGINAL DISEASE.

BY SAMUEL B. WOODWARD, M.D., WORCESTER, MASS.,
Surgeon City Memorial and St. Vincent's Hospitals.

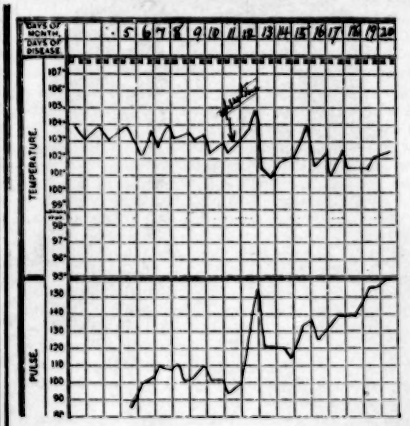
OPERATION for closure of typhoid perforation is not yet so common that it does not deserve record. Generally in the nature of things unsuccessful, an occasional case has been saved, as was for a time apparently the one reported below, and the possibility of successful interference in this almost universally fatal, though fortunately somewhat uncommon, accident cannot but be prominently kept in mind.

F. B., male; age eighteen; student; entered the Worcester City Hospital, January 5, 1898. Ill one week; five days in bed with a history of headache, backache, epistaxis, anorexia, etc.

The patient was poorly nourished and ill developed; facies dull and apathetic; gurgling in the right iliac fossa; two abdominal rose-spots; the spleen palpable below the ribs. The temperature was 103.8°, the pulse 100. Diazo reaction was present. The leucocytosis was 7,000. Serum reaction showed distinct clumping in ten minutes.

Six days later at 11 A. M., severe pain was complained of in the right iliac region, where there was slight tenderness without muscular rigidity. This continued during the day until 6 P. M., when it suddenly became very severe. Tenderness was now extreme, and there was marked muscular rigidity but no abdominal distention. The pulse was 104, and of good character.

Soon after the temperature, which at 4 P. M. was 103°, fell to 98° and then to 96°, while the pulse-rate



rapidly increased; the house physician, Dr. Spaulding, who had diagnosed perforation, summoned the visiting physician, Dr R. W. Greene, and at 8.30 I saw the patient for the first time.

He could not be roused, showing no consciousness when the previously tender abdomen was palpated. There was now moderate general distention, the tongue was dry, the lips open, respiration rapid and the pulse 148 and thready. The outlook was most unfavorable.

A three-inch median incision in the hurriedly prepared abdominal wall brought to light a coil of small intestine lying to the right of the incision, thickened, red and coated for six inches with lymph. Abundant lymph, a white fluid (milk?) and some fecal matter were free in the abdomen. A perforation of the size of a pea was found near the centre of the inflamed intestine, opposite the mesenteric insertion. Its edges were freely excised, and it was closed with a double row of Lembert sutures. Several gallons of normal hot salt-solution were then washed through the abdominal cavity, much of the lymph picked off, and the abdomen closed with silkworm-gut sutures without drainage.

The patient was almost moribund. Abundant stim-

ulation, bandaging the legs, oxygen by inhalation, elevation of the bed foot, etc., finally established the circulation, and the next day the patient was conscious and taking nourishment.

He lived nine days in a typhoid state with no local symptoms suggesting peritonitis.

An autopsy could not be obtained, but the abdominal wound was found ununited and gangrenous at the edges, falling apart when the stitches were removed. The abdominal cavity was dry, the intestines uninflamed with the exception of a local dry peritonitis about the originally damaged coil.

TWO CASES OF STRAMONIUM (?) POISONING.

BY EDWARD A. TRACY, M.D., BOSTON,
Fellow of the Massachusetts Medical Society.

On April 21st last, at half-past six in the morning, I was called to see Mamie, aged nine years, and Patsy Connors, aged seven years, who were both suffering from delirium since two o'clock that morning.

Their mother informed me that they had the measles a week before, and that she feared the measles "had gone in."

Both children were wildly delirious; the girl inclined to be joyous, singing snatches of tuneful melodies; the boy belligerent, yelling to imaginary playmates, and using profanity. This astonished his father who apologetically stated that he had never heard his boy talk so before. The children were too restless to have their pulses taken, but listening over their hearts with the phonendoscope I counted 240 beats for the girl's, and 196 for the boy's. (At six hours later I was able to get the wrist pulses, the girl's 120 and the boy's 98 — both numbers being just half of the previous countings — I am strongly inclined to believe that the first countings took in both sounds of the heart, they being of equal intensity, and just double the correct pulse.)

Their pupils were widely dilated and did not contract to a lighted match brought near to them. Their countenances were flushed — but general erythema was absent.

On seeing the patients I asked the mother what medicine she had given the children. She replied that at half-past eight the night before, she had given Patsy a heaping teaspoonful of "licorice" powder, and Mamie a teaspoonful.

They had slept till two o'clock when Mamie awoke her older sister sleeping with her by pinching and kicking her. A noise was heard in the room where Patsy slept and he was discovered under the bed acting in a most bellicose manner. I asked the mother where she had obtained the "licorice" powder and was informed that a near-by druggist had given away sample packages the previous Saturday.

The packages had been emptied into a jar and the envelopes lost.

My diagnosis was poisoning. Treatment, a strong solution of Epsom salts, three or four teaspoonfuls every twenty minutes until the bowels moved very freely.

Patsy had vomited a little, the vomit not seen by me. The bowels of both were constipated. An emetic was not considered, as eleven hours after the ingestion of poison the emptying of the stomach is not called for. The speedy emptying of the bowels and the production of what may be termed an osmotic catarrh into them appeared to be rational treatment. I also gave each child five grains of Dover's powder, for its sedative and eliminative effects, and requested the mother to apply hot moistened flannels to the children, and to wrap them in blankets, to assist in the elimination of the poison. This was not done.

Soon after this visit I called upon the druggist said to have given the samples. He told me he had given away samples of "Powers' Asthma Specific," but no licorice powder. He gave me a sample package of the powder, and upon reading the directions "to set fire to the powder and inhale the smoke" I called for stramonium leaves and compared them both. Their characteristics were alike. My diagnosis of the cases became therefore stramonium poisoning.

I suspected at first belladonna poisoning — though the characteristic general erythema was absent.

Reading the printed matter accompanying the "Asthma Specific," I came across the word (in capitals) CAUTION! I supposed that under this caption the public would be warned of the poisonous character of the drug. But no! the public was cautioned to see that the name of E. C. Powers was on every package!

To return to my patients. During the day the salts operated well five times. The first movements I examined and saw many green specks. At about ten o'clock P. M. the children fell asleep and slept till half-past five the next morning, the 22d. They raved somewhat in the morning, were dull and listless in the afternoon. All day they were thirsty. Their pupils were dilated, but reacted sluggishly to light. Patsy's pulse was 88, Mamie's 96. Their temperatures were one-half a degree above normal. On the previous day the temperatures were not taken because of the convulsive movements of the patients. On the next day the children's pulses and pupils were normal; the patients were discharged well.

I have placed an interrogation point after stramonium in the title of this paper, not because I have any doubt that the cases were poisoning by stramonium — but because no rigorous scientific demonstration of the samples obtained was made.

The important query arises in connection with these cases, Who could have been held responsible, under the law, had death occurred as the result of the ingestion of the poison? Nobody. Therefore ought not manufacturers of such like "remedies" be compelled to warn the public of their danger when used otherwise than as directed? Ought not they be compelled to put a poison label on the package? A registered pharmacist is compelled by law to use such a label. Why should quack-remedy purveyors be above such a law?

Some Observations during Human Cremation. — It has been found that fat people burn more easily than thin, and women who have died in childbirth are most easily cremated, while persons who have died of consumption require more time and more fuel than any other class of cases. These observations were made in Japan, where the fuel used is fire-wood, placed directly in contact with the body. On an average about seventy-five pounds of wood is required for each complete cremation. — *Medical News.*

Medical Progress.

REPORT ON PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

IMMUNIZATION AND SERUM-THERAPY IN STAPHYLOCOCCUS INFECTION.

DR. WALTER PETERSON[1] has reported the results of his investigation of this subject. A *résumé* of his work shows the following conclusions: That the disease occurs as a toxic-infectious condition usually. That one attack does not procure an absolute or permanent immunity from a second, but that clinical observations occasionally show a temporary or relative immunity. That antagonistic substances are recognizable in human blood-serum after convalescence from severe staphylococcus infection. It was found that a previous injection of sterile culture (sterile by heat) protected an animal from an otherwise fatal dose, or at least definitely delayed death. The use of filtered cultures failed to immunize. In regard to immunization by weakened or dilute cultures the results varied widely, and while attended with a fair degree of success, a method of preparing a serum suitable for clinical work was not discovered. The method of experimentation consisted in treating animals with serum obtained by diluted cultures which had been inoculated with fresh cultures.

RESUSCITATION FROM NARCOSIS FOLLOWING ANESTHESIA.

Herzog[2] has experimented with animals to demonstrate the value of the Laborde method of resuscitation in cases of apparent death from anesthesia. The Laborde method consists of intermittent traction on the tongue at the rate of twenty times per minute. After actual trial with dogs asphyxiated by chloroform or ether, Herzog concluded that the method was valueless in severe cases. That it was a useful accessory when employed with other methods.

ARTIFICIAL ANEMIA AS A LOCAL ANESTHETIC.

The *Centralblatt für Chirurgie*[3] publishes an article by S. Kofmann describing a method of producing local anesthesia by producing a local anemia by the application of an elastic tourniquet. He reports several cases in which the results were quite satisfactory. Foreign bodies were removed from the hand. Ingrowing nails from the toes. Tumors removed, abscesses opened, etc. He claims to be so pleased with the method that he now rarely operates on the extremities in any other way. The extremity is raised, the elastic ligature applied and the operative area cleaned. The constriction should be complete, and the anemia marked, the skin white and bloodless. The cases reported mention complaints of pain due to the constriction of the elastic ligature, which the writer seems to consider as unimportant. The operation must not be begun at once after the application of the tourniquet, but time must be allowed for the anemia and anesthesia to appear.

TREATMENT OF TRAUMATIC JACKSONIAN EPILEPSY.

Graf[4] has written an interesting article describing the results of the operative treatment of these cases. Convulsions beginning in such a manner as would seem to indicate irritation in special motor tracts were considered to indicate that those centres were the seat of the trouble, and that their removal would be followed by recovery of the patient. The results, according to Bergmann's experience, do not always correspond with this expectation. In some cases not the slightest pathological changes have been found, either on the inner surface of the skull, the dura, or the surface of the brain. In other cases, when the supposed cause was found and removed, the convulsions returned. Bergmann, therefore, would restrict this method of treatment (namely, trephining and removal of supposed affected motor centre) to cases of tumors; for example, a cyst which lies in or over a cortical motor centre.

Graf collected 146 cases treated by operation. In 71 the brain was not touched; in 75 the cortex and the pia were attacked. Bone fragments were removed, cysts incised or extirpated, cicatrices cut out, or a cortical centre as demonstrated by electrical irritation excised. In this list 9 patients died as a result of the operation. The recoveries were not confined to any one class of lesion, that is, either where there was a bony depression of the skull or the excision of a cyst, or an apparently normal cortical centre. Even Horsley's radical method did not always prevent a non-recurrence of the convulsions. Thirty-five patients remained free from attacks longer than six months, twenty-two were improved, thirty-six were not relieved, fifty-three were not sufficiently studied to enable the result to be stated. In connection with this report of Graf's, that of Braun, who has reviewed the literature since 1889, is of interest and value.[5] Braun concludes that the clinical data are not yet sufficient to state positively if extirpation of the motor centre is necessary to cure the patient. Cases exist where many have recovered without this extra operation being done.

THE RESULTS FROM LARYNGECTOMY FOR CANCER.

GRAF[6] (Berlin) has published a review of von Bergmann's operative work for removal of cancer from the larynx during the period of 1883 to 1896. During this period forty-eight patients were treated by operation, as follows: 20 cases of total extirpation, 19 cases of unilateral and extensive resection of cartilage, 9 cases of removal of small portions of the larynx, 47 cases were cancer, one a malignant enchondroma. The article is an interesting one. It describes the method of operating used, the pathological condition of the patients, existing complications, and the after-treatment. For details the reader is referred to the original report, which contains so much of interest that only a *résumé* of results can be stated in this abstract.

Results. — Complete extirpation, 1883–1890:

	Cases.	Deaths.	Mortality.
	11	3	45.5%
Since 1890,	9	1	11.1 "
	No recurrence in 2 cases		10%

Unilateral operation (extensive):

	Cases.	Deaths.	Mortality.
Before 1891,	11	4	36.4%
After 1891,	8	1	12.5 "
	No recurrence in 4 cases		21%

Unilateral operation (small portion removed):

Cases.	Deaths.	
9	3	
No recurrence in 4 cases		44.4%

[1] Beiträge f. klin. Chir., Bd. xix, Heft 2.
[2] Deutsche Zeitschr. f. Chir., 1898, xlvii, p. 492.
[3] Band 25, 1898, s. 993.
[4] Arch. f. klin. Chir., 1898, Bd. lvi, s. 591.
[5] Deutsche Zeitschr. f. Chir., 1898; Bd. xlviii, p. 223.
[6] Arch. f. klin. Chir., Bd. lv, s. 399.

NEPHRORRHAPHY.

Sottocasa[7] describes a method which he has devised for fixing the kidney, which consists of attaching the kidney to the quadratus lumborum muscle. This is done by making an incision in the upper third of the convex border of the kidney after it has been exposed by the usual vertical or angular incision. This cut is two centimetres long and one deep. This is tamponed with gauze, while a flap one centimetre thick is cut from the quadratus lumborum muscle on the same level as the incision in the kidney. This flap is then fastened into the incision of the kidney by two sutures of silk. In order to make the union more secure, several sutures through the kidney capsule are added. The muscles and fascia are then closed by a catgut suture, and the skin incision with silk. Dogs treated in this manner and killed forty days after the operation showed that the muscular flap had become white fibrous tissue, and that even by a strong pull the kidney could not be torn free and removed.

BONE CLAMP IN FRACTURES.

An interesting and well-illustrated article describing the Parkhill method of treating ununited fracture of the long bones, cases where malunion exists or recent fractures with a tendency to displacement, has been recently published by him.[8] The method was described two years ago at the annual meeting of the American Surgical Association and consists in fixing the fractured bones in accurate position by a metal clamp which is attached to the bones by metal pins screwed into them. This present article gives the writer's experience with the method since his last report. It includes fourteen cases of complicated fractures, cases of non-union, pseudo-arthrosis, union with deformity requiring resection, etc. For details those interested in the subject are referred to the article itself, which is too extended to be given here. The author's conclusions are:

(1) That union has been secured in every case against 56 per cent. by other methods.

(2) It is easy to apply and works accurately.

(3) It prevents either longitudinal or lateral motion of fragments.

(4) Its presence stimulates the production of osseous tissue.

(5) Nothing is left in the bone to reduce vitality, cause pain or infection.

(6) No secondary operation is required.

RENAL TUBERCULOSIS.

Tuffier[9] divides renal tuberculosis into a miliary form, and one called tubercular infiltration. The latter is subdivided into (*a*) a nodular infiltration with or without cold abscess; (*b*) the tubercular pyelonephritis; (*c*) the moderate degeneration of the kidney; (*d*) the tubercular hydronephrosis. The different forms occur alone or combined. Often the perirenal tissue and the upper part of the ureter are involved.

Tuffier considers that since removal of the diseased parts of the kidney or the whole kidney has not been followed by a recurrence after several years that the disease in a large number of cases must be primary.

Nephrotomy is selected for cases where there is sepsis from retention. Primary nephrectomy is justifiable only when one can be sure of the sound condition of the other kidney. If one cannot be certain, then the surgeon should do a nephrotomy, and later, if desirable, the nephrectomy can be done. When the kidney is removed as large a piece as possible of the ureter should be removed also.

His statistics show seven nephrotomies, namely, two died from the operation; three improved, but healed with a fistula; two became well, in one at the end of two years, in another at the end of five years; nine nephrectomies; seven primary, two secondary cases; no deaths; two cases well at end of five and a half and six and a half years.

THE TREATMENT OF URACHUS FISTULA.

E. Lexer has written an interesting article on this subject.[10] He concludes that the congenital and acquired varieties differ essentially as regards the facility with which a patient is cured. The cause in the congenital cases is essentially some slight obstruction to the escape of urine in the normal direction; for example, phimosis, contraction of the urethra, a fold of the vesical mucous membrane. Such cases often heal if the urine can be made to escape normally and the fistula closes by cicatricial contraction produced by simple cauterization or by resection of the urachus and suture of the mucous membrane wound, as has been done by Delagénière and Stierlin.

In acquired fistulæ it has been found that frequently the lowest part of the fistula has not been destroyed, but that in the lig. vesicæ medien there exists an epithelial tube patent to a sound. Under these conditions a fistula first appears when a valve-like fold of mucous membrane at the bladder opening is insufficient. In such a case v. Luschka operated successfully by tracking the fistula to its junction with the fundus of the bladder, cutting it off at this point and suturing the bladder opening. The bladder had in this case, as in one of v. Bramann, the shape of a long, thick-walled tube. It is possible only by a microscopic examination to distinguish such cases of fistulæ of the urachus from an abscess of the bladder wall which has perforated.

An attempt should be made to close congenital fistulæ directly after birth by the simplest means, such as excision of orifice and suture. If unsuccessful one should make a radical operation later in life, since the peritoneal cavity is, as a rule, opened.

In the acquired cases Lexer advises the Bramann operation without injuring the peritoneum, that is, the fistula is split open from the umbilicus to the bladder and the epithelial layer dissected off. When the epithelial layer unites with the abnormally shaped fundus of the bladder the entire tube and a sufficient layer of the thickened fibrous wall is dissected free, cut off at the fundus of the bladder and the bladder sutured.

LIPOMA OF THE VAS DEFERENS.

A description of such growths which are quite rare has recently been published.[11] These growths arise from the adipose tissue of the cord or the sub-serous fat layer but always develop within the tunica vaginalis corum. Gabryszeski, the author of the article, has collected 29 cases, one of which was his own and was operated. Gabryszeski found in fifty cadavers that in each case in the loose, perivascular, connective tissue about the "processus vaginal peritonæi" macroscopically visible fat lobules which usually were continuous

[7] Centbl. f. Chir. 1898; Bd. xxv, s. 1013.
[8] Annals of Surgery, 1898, vol. xxvii, p. 553.
[9] Paris, Masson & Co, 1898, 288.
[10] v. Langenbeck's Arch., Bd. lvii, Heft 1.
[11] Deutsche Zeitschr. f. Chir., 1898, Bd. xlvii, s. 317.

with the subperitoneum fat layer. When the lipoma develops from these fat lobules it is called primary in distinction to those which begin in the neighborhood of the cord, and later by increasing occupy its position. The tumor is usually discovered accidently. The patient happens to feel a small mass in the scrotum which gradally grows and by its size causes discomfort. A positive diagnosis is often impossible. The treatment is enucleation and on account of the difficulty in making a positive diagnosis should be done early.

(To be continued.)

Reports of Societies.

THE NEW YORK STATE MEDICAL ASSOCIATION.

FIFTEENTH ANNUAL MEETING AT THE MOTT MEMORIAL HALL, NEW YORK CITY, OCTOBER 18-20, 1898.

DISCUSSION ON INTESTINAL OBSTRUCTION, HELD ON THE SECOND AND THIRD DAY OF THE SESSION.

THE discussion was opened by DR. PARKER SYMS, of New York County, who presented a general introduction to the subject. No pathic condition of more importance, he said, could engage the attention of the profession, for, while it frequently proved fatal, it was in reality one which was absolutely curable if promptly recognized and properly treated. Unfortunately, however, it was too often neither so recognized nor so treated, and it could not be doubted that a more thorough knowledge of the subject would lead to the saving of many lives that were now sacrificed. The condition was apt to be mistaken for simple constipation with more or less ptomaine poisoning from retained products, yet the symptoms were really very different. Whenever any portion of the intestine became incarcerated and a loop was being strangulated, we always had the element of abdominal shock.

As a rule, the general practitioner was loathe to resort to operative procedures, and, consequently, while he was temporizing, most valuable time was lost. It was folly to attempt to reduce an intestinal strangulation by means of cathartics, which not only did no good, but were even liable to cause much injury. As well might we attempt to remove a tourniquet from the thigh with internal doses of calomel.

Having enumerated the principal causes of obstruction, he said that the class of cases due to impaction of feces was an exception, in that medication might possibly prove of service, but even here it was better to operate before waiting very long for medicines to act. Enemata, however, might be thoroughly tried before resorting to laparotomy. The diagnosis of fecal impaction having been satisfactorily made, it was proper to use high injections, reaching as far as the ileum, but if these failed to relieve the condition, an early resort to operation was called for. If done promptly we would probably have a comparatively vigorous patient to deal with; while, if delayed too long, we would have a dying patient with a gangrenous intestine. If there were any doubt as to the diagnosis, laparotomy should be performed for the purpose of exploration. Volvulus was a comparatively rare variety of obstruction, and one in which it was impossible to make a diagnosis without laparotomy. It was always acute and very dangerous. It was a matter of the utmost importance to recognize chronic forms of obstruction attended with signs of strangulation. As soon as the region involved was determined, laparotomy should be done. According to the special circumstances of the case the operation might be very simple or one of the most difficult and intricate in the domain of surgery. There was always the dual problem to deal with, the cause of the obstruction and the actual condition of the affected parts.

DR. E. D. FERGUSON, of Troy, Rensselaer County, read a paper on

THE CAUSES OF ACUTE INTESTINAL OBSTRUCTION, WITH A DESCRIPTION OF THEIR MECHANISM.

He said that the term *obstruction* was not always strictly descriptive of the condition, as, for instance, when the trouble was due to intestinal paralysis; and he thought the Anglo-Saxon word *stoppage* would be a better one for it. In three cases in which he was about to operate it had been his good fortune to find out before doing the laparotomy that the stoppage of the bowels was due to lead paralysis. Having referred to paresis from peritonitis, ptomaines, toxins, etc., he said that while some doubted the possibility of occlusion of the intestines from mere dynamic causes, there could be no question that cases of this kind, without any mechanical obstruction, were sometimes met with.

As to mechanical causes of obstruction, they could be classed in three divisions:

(1) Conditions without the intestinal walls.
(2) Conditions within the walls.
(3) Conditions relating to the intestinal wall, as, for instance, intussusception caused by a polypus.

In the first class of causes we had first tumors and displaced viscera. In over seventy-five cases of this kind the obstruction was in the fixed part of the intestines, and the rectum led in frequency. In view of the commonness of abdominal growths of various kinds, it was somewhat singular that this cause was not oftener met with. When the seat of obstruction was above the pelvic brim it was more frequently due to traction, and in this connection Dr. Ferguson related a case caused by a retroverted uterus which had attained the size of a gravid uterus in the third month, where relief was afforded by the reposition of the organ. In the next place, we had compression by bands and cords. In the majority of cases these were the result of peritoneal inflammation, and the segment of bowel affected was almost always in the small intestine, and generally the ileum. Still, any portion of the peritoneal cavity might be involved; but, curiously enough, the omentum, which, from its position we might expect to be the frequent seat of trouble, was rarely affected. Another curious fact was the rarity of more than one band or cord. The length and position of the band determined in a measure the character of the obstruction, and the mechanism of the obstruction was usually very simple. The cords met with in the abdominal cavity might become detached, and, like a whip-lash, get knotted, and the practical point was to discover in any case whether we had to deal with a loose cord or a fixed band. Strangulation by Meckel's diverticulum was mentioned as sometimes occurring. In the third place we had compression in apertures. This was the largest class, and included the hernias.

Having spoken of the mechanical details of causation, he passed on to the second division of causes,

conditions operating within the intestinal walls. In these were included impacted feces, gall-stones and foreign bodies of various kinds, among which it was now necessary to mention the Murphy button.

The most important of the third division was the telescoping of the bowel known as intussusception, which constituted more than one-third of all the cases of intestinal obstruction. The external of the three layers thus formed was known as the intussuscipiens or sheath, the innermost the entering layer, and the middle one, the returning layer. There might be double and even triple intussusceptions, but they were rare. There were spasmodic forms and paralytic forms, and the latter showed that the innervation of the bowel was an important factor. Another important element in the causation was peristalsis on the part of the sheath.

In obstructions due to physical conditions relating to the wall of the intestine were included stricture and volvulus. Stricture was usually chronic and either cicatricial or cancerous in character. It became acute only under special circumstances. Volvulus, or the twisting of the intestine so that its lumen became occluded, might be either around the mesenteric axis of the bowel, or more or less directly along the line of the bowel; the transverse twist and the longitudinal twist. Volvulus was most commonly met with in the sigmoid flexure, and among the circumstances favoring its production was a long mesentery. The degree of twisting varied greatly in different cases, and if it was pronounced there was very little hope of a natural restoration of the parts. One event to be looked for was the early development of peritonitis.

DR. GEORGE D. STEWART, of New York County, read a paper on

THE CAUSES OF CHRONIC INTESTINAL OBSTRUCTION.

The acute and chronic forms of obstruction were so closely associated, he said, that the distinguished authority, Treves, made no distinction between the two. Most writers agreed that chronic obstruction was usually a partial occlusion of the bowel which might at any time assume an acute form under favoring conditions. By far the most common cause was stricture, either benign or malignant. Simple stricture, partial or complete, usually followed the healing of an ulcer. The character of the primary ulcer had much to do with the production of stricture. Round or longitudinal ulcers were rarely followed by this condition, those of irregular outline being usually responsible for it. It was doubted by Treves whether typhoid ulcerations ever resulted in the formation of stricture. Stricture might also result from injury and it might be congenital. The latter form was very rare and usually complete. That the stricture produced was chronic rather than acute was due to the slow contraction of the cicatricial tissue resulting from ulceration and the gradual involvement of the intestinal wall.

Having spoken of the characters of stricture due to malignant disease, and mentioned that secondary carcinoma closely resembled primary, he said the next most frequent cause of chronic obstruction was paresis of the intestinal wall, with fecal impaction. It was apt to occur during an apoplexy or other exceptional call upon the patient's forces, but sometimes resulted from simple lack of exercise. He described the conditions usually present, and then said that when a localized peritonitis resulted in cure we might have chronic intussusception produced. Again, adhesions due to peritoneal inflammation-bands might produce obstruction by their slow contraction, while an adhesion lying over the intestine and not joining it to any viscus might cause obstruction by puckering the bowel. Mesenteric gland disease was a very common cause of these false ligaments, and they might also result from tubercular peritonitis. Strangulation by diverticula, such as Meckel's, sometimes caused obstruction. A loop of intestine might either become fixed under an arch of the diverticulum, or the latter, when unattached and with a clubbed extremity, might tie itself in a knot about the pedicle of the loop. Benign growths of the intestinal wall were rare. In conclusion, he spoke briefly of volvulus of the sigmoid flexure, obstruction by the pressure of tumors, etc., external to the bowel, foreign bodies, gall-stones, etc.

DR. J. W. S. GOULEY, of New York County, read a paper on

INTESTINAL OBSTRUCTION DUE TO IMPACTION OF FECES, GALL-STONES, FOREIGN BODIES, ETC.

Impaction of feces, he said, was preceded by long-standing constipation. The patient might perhaps even have one or two stools of a certain character every day, and be deceived into the belief that his bowels were acting regularly, but the impaction was going on all the time. The best method of treatment for the condition he believed to be the slow and gradual irrigation of the intestines with warm saline water, together with two or three large enemata at intervals of two days. As an adjuvant laxatives in small doses were of service. Large doses of cathartics he thought were more likely to do harm than to be helpful. The enteroliths liable to cause obstruction were at least five different kinds, namely, (1) gall-stones; (2) fecal masses largely composed of calcareous matter, such as is seen in the stools of dogs; (3) masses largely composed of vegetable matter, such as the avenolith, or oat-stone, resulting from excessive use of oat-meal; (4) masses composed of solid medicinal substances, such as magnesia, bismuth, etc.; (5) foreign bodies serving as nuclei for the formation of hard masses of various size. When enteroliths of any of these kinds caused obstruction of the bowels they were to be removed by laparotomy. Foreign bodies, he went on to say, entered the intestinal tract by way of the mouth and the anus, and sometimes through penetrating wounds of the abdomen. The swallowing of coin, though of common occurrence, seldom caused any serious inconvenience. The remainder of the paper was devoted to the citation of a large number of curious cases collected from various sources, in which foreign bodies of unusual character were taken into the alimentary tract.

DR. J. D. RUSHMORE, of Kings County (Brooklyn), read a paper on

THE DIAGNOSIS AND TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

The usual symptoms were pain, nausea, vomiting and collapse, with the possible presence of an abdominal tumor. There was generally failure to pass either feces or gas, but in cases of intussusception, at least in the earlier stages, diarrhea was present. The usual situation of the trouble was in the small intestine. In every case it was of the utmost importance to bear in mind the possible existence of hernia. Clinically it was the most frequent form of obstruction. Again, the symptoms of acute obstruction might all be pres-

ent in some other conditions, such as peritonitis and lead poisoning.

Our first duty to the patient, then, was to find out whether he had a strangulated hernia or not. If there was any doubt about the matter a simple exploratory incision under cocaine anesthesia should be resorted to. When the obstruction was located in the large intestine Kelly's rectal tubes might be of service in the diagnosis. The cases presenting the greatest difficulty were those in which the trouble was entirely intra-abdominal. We had to differentiate between mechanical and non-mechanical causes, and little or no help could be derived from the use of cathartics. An exploratory laparotomy furnished, in fact, the only means of making an exact diagnosis. This was a certain and not unsafe method, and it was one justified by the condition of the patient. In regard to the statistics of operation Dr. Rushmore quoted extensively from the paper of Dr. Fitz, of Boston, read before the Congress of Physicians and Surgeons, 1898.

There was no symptom that was always present. Even pain might be absent. Fecal vomiting was most frequent where the obstruction was caused by gallstones, but the figures at our command were of such a character as to show that little reliance could be placed on them in making a correct diagnosis. The previous history of the patient and other concomitant circumstances might perhaps guide us to some extent. The use of cathartics, as has been mentioned, was of no avail, and puncture of the intestines could give but little assistance, and was not devoid of more or less risk. General anesthesia would usually throw much light on the case by abolishing muscular rigidity and allowing the physician to make a more thorough examination of the parts. If this failed to establish a reasonably satisfactory diagnosis the only means left was an exploratory laparotomy. This enabled us in a few minutes to recognize the exact condition, so that we could then definitely pronounce whether the obstruction was due to a mechanical or a septic cause. The risks of the procedure were very slight, and on account of the complete examination it enabled us to make, it could be confidently asserted that we could be more certain of our diagnosis in the abdominal cavity than in either the cranial or the thoracic. This was a field of exact diagnosis.

The indications for treatment were simple. No where in surgery was it more important to remove the cause of trouble as soon as found. The danger of delay was great. The earliest possible diagnosis having been arrived at, the case was to be treated according to the conditions found present. As to imperforate anus, for instance, there was no dispute as to what was to be done. So, in strangulated hernia there was no dispute. Taxis having failed to reduce it, an immediate operation was called for, and this might be either partial or complete, according to circumstances. As a rule, a patient suffering from acute intestinal obstruction should not be allowed to go more than forty-eight hours without an operation. Even in septic peritonitis laparotomy should be resorted to in selected cases. Certainly nothing else could possibly save the patient, and while the mortality was necessarily larger in this class of cases, a sufficient number of recoveries had been observed to amply justify the operation.

The statistics of acute intestinal obstruction showed a mortality under medical treatment of 75 per cent. In obstruction from intussusception, volvulus and strangulated, the chances had been shown to be largely in favor of operation. Without operation the mortality was 95 per cent., and with operation 67.3 per cent., a saving of nearly 25 per cent. The percentage of recoveries was much larger than those in cases where the operation was done early, and the figures of Wiggin (1896) showed a mortality of only 22 per cent. in all cases operated on within forty-eight hours, or before the bowel had become gangrenous and the patient exhausted. In speaking of the statistics of other authors, he said that the time-limit (forty-eight hours) seemed largely to explain the discrepancies met with. Thus, in a series of cases collected by Fitz the mortality was only about 60 per cent. in those treated medicinally, and 80 per cent. in those treated surgically; but an examination of the list showed that in only two cases was the operation performed before the third day.

This point was to be emphasized, that not only was there very great risk in delay, but also in the use of mechanical force for distending the bowel with water or air in the non-operative treatment. Such risk, he believed, was far greater than that from anesthesia and the performance of laparotomy. Dr. Fitz had concluded his valuable paper with the statement that it was advisable usually to keep up the use of injections for three days. If by that time these had proved inefficacious, the case was no longer medical but surgical. Dr. Rushmore thought the case should be considered a surgical one *before* the third day. In cases of this kind the general practitioner was too often wont to say, "Let us wait and see." The surgeon, however, pointed out a better way, *to see and wait.*

(To be continued.)

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING, May 17, 1898, at 8 P. M., DR. F. H. DAVENPORT in the chair.

DR. ALFRED WORCESTER read a paper entitled

DISTRICT-VISITING NURSING IN OBSTETRICAL PRACTICE.[1]

DR. J. P. REYNOLDS spoke of the duties of the obstetrician and the importance of the proper preparation of the patient for labor, and also of the burden that "trained nurses" are to the class of patients Dr. Worcester has referred to. He hoped that it might prove possible to carry into effect the reforms advocated in this paper.

DR. A. D. SINCLAIR: In the early days before trained nurses, of course the physician had himself to do everything that Dr. Worcester has outlined as part of the nurse's duty. When the "trained nurse" appeared, her extraordinary knowledge was often the most noticeable thing about her and she often was a sore trial to both the patient and the physician. District nursing as described by Dr. Worcester must work most admirably.

DR. J. G. BLAKE asked for more definite information as to the actual working of the system in Waltham.

DR. WORCESTER: In Waltham I have a district nurse at every lying-in case I attend, the majority of which are among the poorer classes, or at least among

[1] See page 537 of the Journal.

those who cannot afford to have an ordinary costly trained nurse. When I am engaged to attend upon a case, the patient at the same time engages the nurse. The nurse stays with the woman from the first symptom of labor until an hour or two after the baby is washed and dressed; she makes another visit ten hours later, and then a visit twice a day for ten days, receiving one dollar for her service at the labor and twenty-five cents for each subsequent visit. This system now obtains in many of the smaller cities in Massachusetts. Ten years ago we thought that six nurses would be an over-supply for Waltham; we now keep forty or fifty busy. These nurses, I wish it understood, are in course of training, and the money goes to the hospital. The value of the experience is so great that graduates often come back for a course.

Dr. Blake: Is it your desire to have schools established in the smaller cities or how are you going to educate the nurses away from the large towns?

Dr. Worcester: The idea that nurses can be trained only at the large hospitals is a very modern notion indeed. Trained nursing started in the little town of Kaiserwerth. As it is now the aggregate number of nurses at the schools in the smaller towns is greater than that of those in the schools in the large cities. Now almost every town of 10,000 inhabitants has its training-school, and their nurses get practical obstetrical experience in the way I have outlined. In London now the instruction obstetrical nurses have is of the practical kind and not in hospitals.

Dr. Higgins spoke of the system in vogue in Boston, under which the care given by out-patient nurses connected with the Boston Lying-in Hospital is limited to after-treatment, the preparation, etc., being done by medical students who needed the experience. At the Lying-in Hospital the nurses get the instruction Dr. Worcester has outlined, and are quite competent to carry on a case in the manner he describes. While recognizing the value of the practical work, the speaker did not see how it could be given in our larger hospitals. At the City Hospital, for instance, they have a didactic course but no practical work.

Dr. Cushing: The question of the legal responsibility of the physician arises. I fear that if a physician trusted to a nurse to notify him when needed, and an accident occurred, it would go hard with him if he gave that excuse. The midwife seems to me the logical outcome of Dr. Worcester's methods. With the great struggle for existence it is a great question how desirable it is to turn over to nurses much of the work now done by the doctor, and I doubt very much whether the younger men will thank us for it. Finding that nurses are dependent upon obstetrics after graduation, I have carried out much of this system with my own nurses, sending them out when occasion offered while still under my control.

Dr. Boardman: I am strongly opposed to the higher education of nurses. I believe in their proper education — not as physicians or obstetricians. Of course the point at which to stop is an arbitrary one. I recognize the value of a good nurse; I know also how that value is diminished if she knows too much. I am in sympathy with the idea of nurses, while still in hospitals, having work in families. A nurse graduating with high rank is often at sea when she comes into a private family.

Dr. Engelmann: I confess to a certain amount of interest as to what this is going to lead to. If the nurse is sufficiently educated to know enough to summon the doctor at the proper time, she is quite able to conduct a normal case. It seems to me that this will involve the midwife system, and American women are too ambitious to remain midwives. I certainly should think the result of so much teaching would be to place normal cases in nurses' hands.

Dr. Washburn: As far as the practical results of the training nurses have at Waltham goes I can only say that it is very good. I have had several Waltham nurses, and have yet to see any tendency to assume undue responsiblity. The difficulty in supplying obstetrical nurses for families of moderate means is great, and has been discussed at length in this Society. At that time we could see no method of obtaining suitable nursing at low wages. Nurses that were worth having would not go to a case for less than fifteen or eighteen dollars. If the system Dr. Worcester describes could be carried out it would be a great advantage to the patient. The great difficulty would be in supplying a nurse with sufficient work to make her willing to take up that line, and in a city like this it would be hard to start a hospital with that for its main work. If the lying-in hospitals in our large cities would undertake it the problem would be solved.

Dr. Breck: I am surprised that no one has mentioned the fact that we have in Boston three nurses, two of whom are graduates, who do this work already, charging two dollars for assistance during labor and a dollar for each subsequent visit. Of course the problem of supplying competent nursing to the lower middle class is a very difficult one. I would suggest that it might be met by the establishment of a well-appointed hospital to which any reputable physician might send his cases and attend them himself.

Dr. Blake called attention to the fact that there were already in the city one or two houses of this nature conducted by nurses.

Dr. Cumston asked how many cases a nurse is supposed to attend before she is regarded as competent to determine the position.

Dr. Worcester: I never try to teach them to determine the position. They are taught the presentations on a mannikin and are expected to be able to tell that.

Dr. Kingman: I think Dr. Worcester is deserving of much gratitude from patients for his persistent fight in this direction. There can be no question but that patients are dissatisfied with the present conditions, and with justice. One cannot get a nurse for less than fifteen dollars that is worth having, and this ought not to be so.

Dr. Worcester: It would be perfectly possible for Boston to obtain a large amount of competent nursing for the poorer classes at low rates if the training schools would adopt a three years' course, and during it give outside training under physicians connected with the schools. Then Boston would regain the position and reputation as a teaching centre for nursing that she certainly has lost; for while other places have advanced, Boston has stood still. If this were done, the poor in Boston could have the same care at the same low rates their country sisters do. I must emphatically protest against the idea expressed here tonight that there is danger that nurses can be taught too much. The more they are taught the less is the danger of their overstepping the proper bounds of their position. I have never known a Waltham graduate

undertaking to conduct a labor, although they all know well enough that a normal labor will take care of itself. The trouble in Boston is that the instruction is all to the student and not to the nurse, and this at the expense of the patient. As has been said to-night the graduates of our large hospitals are not trained in obstetrics. It is a common thing for Boston nurses to go to New York or Philadelphia for a course in obstetrics, and it is upon obstetrics that most of them must depend for their bread and butter. What are the objections to providing an outside course in obstetrics to the nurses? Women do not want to go to the hospitals, as Dr. Breck suggests, and I know a low-rate competent student nurse would be welcomed by thousands of women. Fears have been expressed at the practical working of our system at Waltham. There is, however, absolutely no opposition on the part of the profession in places where it has been tried. There should be ten times as many nurses as doctors; as it is, there are only one-tenth as many.

DR. GRANT demonstrated the specimens from a case of

EXTRACTERINE PREGNANCY RECENTLY OPERATED UPON BY DR. BAKER.

BOSTON SOCIETY OF MEDICAL SCIENCES.

THE Boston Society of Medical Sciences met November 15th, the President, DR. H. C. ERNST, in the chair, and the following communications were made.

DR. THEOBALD SMITH spoke of

A TUBERCLE BACILLUS HAVING A LOW DEGREE OF VIRULENCE.

The organism was obtained from a patient, who, during life, had presented a suppurating swelling of the neck, which had yielded numerous tubercle bacilli. The autopsy showed also a healed lung tuberculosis. The inoculation experiments made by Dr. Smith showed that the bacilli had an unusually slight virulence, that there were no foci in the lungs of rabbits inoculated in the ear vein, and that there were certain unusual variations in the lesions produced in guinea-pigs.

DR. W. T. PORTER gave the results of work done by W. Baumgarten on

INFARCTIONS IN THE HEART.

He had studied the distribution of the coronary arteries in the dog and cat by aid of the Röntgen rays, after injecting the vessels with a mixture of starch and subnitrate of bismuth. Important conclusions were, that branches of the large trunks of the coronary artery do not encroach upon the distribution of other large branches; that the ischemic area remains contractile many hours after ligation of its nutrient artery, and that the heart-sounds are not affected by the presence of infarctions in the heart walls.

Dr. Porter also described an experiment which proves that the co-ordination of ventricular contraction does not depend upon nerve cells.

DR. J. ORNE GREEN gave the results of one hundred and twenty-four blood-counts in forty-four patients, relative to the question of

LEUCOCYTOSIS IN TYMPANIC SUPPURATIONS.

He found that leucocytosis was present in 79.5 per cent. of the cases, and absent in 20.5 per cent., and that it was, therefore, of no value in differential diagnosis from other intracranial suppurations.

DR. E. A. DARLING reported an interesting case, in which a mother died of typhoid fever on the 21st day, having given birth during the fever to a seven months' fetus. Examination of the child, which died in a few days, showed no evidence of the transmission of the disease, and did not give the Widal test.

DR. G. B. MAGRATH gave a lantern demonstration of elastic tissue in the walls of arteries. His general conclusion was, from a large number of arteries examined, that the distribution of elastic tissue bears no relation to the size of the vessel, but probably has some definite relation to its function.

Recent Literature.

Medical Diagnosis; A Manual of Clinical Methods. By J. J. GRAHAM BROWN, M.D., F.R.C.P.E., F.R.S. Ed., Assistant Physician to the Royal Infirmary, Edinburgh; Lecturer on the Principles and Practice of Medicine in the School of Medicine of the Royal Colleges, Edinburgh. Fourth edition, revised and enlarged. With one hundred and twelve illustrations. Philadelphia: P. Blakiston, Son & Co. 1898.

This useful manual, which has been for some time out of print, has been recently revised, and largely rewritten, the chapters on the examination of the gastric contents, the blood, the urine, and the nervous system having been greatly amplified. Numerous illustrations have been added, which add considerably to the clearness of the descriptions, so that the book in its present form is a very complete and comprehensive manual of clinical methods, both general and special.

A Manual of Surgery for Students and Practitioners. By WILLIAM ROSE, M.B., B.S., London, F.R.C.S., Professor of Clinical Surgery in King's College, London, etc., and ALBERT CARLESS, M.S., London, F.R.C.S., Senior Assistant Surgeon King's College Hospital, etc. 1162 pages, 392 illustrations. New York: William Wood & Co. 1893.

This book, like many recently published, aims to "present the facts of surgical science in a concise form" adapted to the needs of the medical student or even those preparing for the more advanced English examinations in surgery. The requirements of the general practitioner has also been considered. The writers admit that it has been difficult to compress modern surgical science into a small text-book and state that they have only been able to outline much that could easily have been more elaborately described had space permitted. The first eight chapters of 234 pages are devoted to general subjects, such as inflammation, suppuration, ulceration, gangrene, sepsis and infection, tumors, cysts, wounds, hemorrhages, etc. The remaining ones describe specific traumatic and pathological conditions of special regions. Plastic surgery and amputations occupy each a chapter, and the book concludes with a chapter on anesthesia.

The book is very concisely written, in some instances so markedly so as to be little more than a good index of the special subjects under consideration. Operative technique is quite briefly described, and is usually in-

cluded in the treatment of particular lesions or diseases. The field, however, has been quite thoroughly covered and the reader will find few things relating to surgery that do not appear in these pages in some form or other. At times the allusion is very brief, but in other instances an extended article appears. The book will well fulfil the purpose for which it has been written, that is, a text-book for students, and is a good *résumé* of the subject. It is a neat, well printed, somewhat heavy volume, so indexed and paragraphed that references to an especial subject or part of a subject is an easy task for the reader.

Elements of Histology. By E. KLEIN, M.D., F.R.S., Lecturer on General Anatomy and Physiology in the Medical School of St. Bartholomew's Hospital, London, and J. S. EDKINS, M.A., M.B., Joint Lecturer on and Demonstrator of Physiology in the Medical School of St. Bartholomew's Hospital, London. In one 12mo volume of 506 pages, with 296 illustrations. Philadelphia and New York: Lea Brothers & Co.

As stated in the preface, this book, already well known to students of the subject, has been revised, and in part rewritten to meet the progress of research in minute anatomy. Particularly is this noticeable in the chapters on the nervous system, in which the recent ideas of cell structure and arrangement are given due weight, and the text much increased in value by numerous illustrations. An attempt has been made in this section to use the method of photography, and always with striking success; for example, the illustrations on page 205 and page 220 are not so instructive as diagrammatic representations would be, owing to the inadequacy of reproduction of the original section. In other portions of the book less effort has been made to depart from the ordinary diagrammatic drawings, on the whole, with advantage in a text-book of this character.

The volume is well printed, not bulky, and in general is certainly to be recommended to the class of students for whom it is intended.

The Essentials of Histology. By EDWARD A. SCHÄFER, F.R.S., Professor of Physiology in University College, London. New fifth edition, revised and enlarged. Octavo, 350 pages, with 325 illustrations. Philadelphia and New York: Lea Brothers & Co. 1898.

This book is probably better known and more universally used than any similar text-book in the English language. With the advent of its fifth edition its popularity will no doubt be still further increased. The arrangement of this, as of previous editions, is intended to enhance its value in the class-room. It is divided into forty-six lessons, each of which is designed to occupy the student from one to three hours. No effort has been made to introduce the newer methods of illustration by means of photography, a conservatism which detracts nothing from the usefulness of the book as a laboratory guide. It is admirably printed on rather thin paper in the American edition and it may safely be predicted that this volume will occupy the same place of respect that its predecessors have before it.

A WOMAN MEDICAL INSPECTOR. — According to the *N. Y. Medical Journal*, Dr. Mary H. Murray has been appointed a medical-inspector of schools in New York.

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THE NATIONAL QUARANTINE CONVENTION AT MEMPHIS.

THE Memphis Quarantine Convention, to which reference was made in the last issue of the JOURNAL, ought to bring us within measurable distance of a settlement of the vexed question of the nature and limits of the quarantine service of the country.

The call for the meeting, issued by the Memphis Chamber of Commerce, was addressed to those only who were in favor of a comprehensive control of quarantine under the authority of the national government, and thus were cleared away many of the difficulties which have hitherto beset such conventions.

Nearly one hundred and fifty delegates were present, representing States, cities, commercial organizations and some of the great railroad systems of the southwest. Though many medical men were present as delegates from the various public health authorities of the country, still the physicians were, upon this occasion, in a minority. The South was, naturally, more fully represented than the North, and the State of Mississippi, which suffered more severely from the effects of yellow fever panic, than did any other Southern State during the recent epidemic, had the largest delegation of all.

The men composing the various delegations are distinguished in many walks of life. The very efficient chairman of the meeting was Gen. Luke E. Wright, of Memphis, formerly attorney-general of his State. At the head of the Mississippi delegation was ex-Governor Shands, professor of law in the University of Mississippi.

Ex-Governor Bullock, of Georgia, was an active and influential participant in the work of the body, both in committee-room and on the floor of the Convention, and was ably seconded by the very capable Mayor of Atlanta, Mr. Collier. The chairmain of the Louisiana representation was a very prominent member of the Cotton Exchange of New Orleans, and though he had been instructed by that organization to resist the

attempts of "the doctors" to obtain possession of the administration of quarantine, was able to support heartily and ably the resolutions which were finally adopted.

Under the energetic direction of the Chairman of the Convention, no time was lost in the usual and useless discussions upon the nature and proper treatment of yellow fever, for he discovered the happy expedient of relegating several papers upon these subjects, together with an exhaustive statement of our duty to the new possessions of the United States beyond the seas, to the evening sessions of the Convention, while the sub-committees of the meeting were at work upon the matters referred to them.

For a proper consideration of the difficulties which attend such Conventions as this, in Southern States, it should always be remembered that *yellow fever* is the one disease always present in the minds of the Southern people when the question of quarantine is under discussion, and it is quite apparent that this collection of men offered no exception to the rule. A considerable number of those present, especially among the representatives of the transportation companies, would undoubtedly have preferred to vote for some measure which gave absolute power to the general government in times of yellow fever epidemic and to stop there, rather than to go on with the consideration of a general system for the protection of the public health. It was well therefore for Dr. Hamilton, one of the delegates from Illinois, to call the attention, as he did, of the Convention to the necessity of a wider view of the great subject of the spread of the preventable diseases other than yellow fever. Dr. Hamilton's complete familiarity with the work of the Marine-Hospital Service gives to his opinions upon a national public health service great value, — a value which has not been essentially diminished by the apparent uncertainty as to the disinterested quality of his utterances upon this subject.

He represents the recorded opinions of the great medical associations of the land, and of the most influential public health organizations, and they are all in favor of some national organization, intelligent enough to comprehend the great problems presented by preventable diseases, and strong enough to use all the power of the general government in case of need, to control the spread of pestilence.

The Convention devoted two days to the consideration of the question of the best form of national organization, and as the result of their deliberations, adopted the resolutions which we have already printed.

These resolutions were prepared by a committee consisting of one delegate from each State represented in the Convention; this Committee was presided over by ex-Governor Shands, of Missi-sippi, and was again not under the control of the medical profession, and was able to come to a unanimous report. The report was adopted by a vote of 136 to four, and was then upon motion of a member of the minority made unanimous.

Those of our readers who are familiar with the proceedings of a quarantine convention in a Southern city will understand how important a result has been reached by this united report.

For the general interests of scientific medicine it is to be hoped that some agency may now be established for a wise and patient investigation of the one preventable exotic disease which is of more consequence than any other to this country. It is true that now and again officers of some of the medical services of the government at Washington have been sent into the tropics for brief periods of time to study yellow fever, but thus far we have gained little by such efforts, and cannot hope to do so until such studies can be carried on under the direction of a well-established department of government which shall not be compelled to fight for its existence at every session of Congress — as was the case with the National Board of Health.

The conditions which can meet the requirements of the resolutions of the Memphis Convention are substantially those of the so-called Spooner Bill, now before Congress, for the creation of a Bureau of Public Health with a commissioner at its head aided by a council composed of a delegate from each State. The council would serve many useful purposes: it would unite the activities of the various States in health matters, it would bring about an immediate connection between the authorities of the States and the office at Washington; every member of the council, having had experience in public health administration in his own State, would be a useful counsellor in the new board; and finally would exercise a most important function, in procuring, each in his own State, that support on the floor of Congress which is essential to the satisfactory maintenance of a public department, a support which cannot easily be refused to one who can speak with authority among the constituents of the respective members of Congress.

SANITATION AND SMALL-POX.

WALTER LLOYD has written on "Sanitation and Small-Pox" in the *Westminster Review* for November, 1898, and pointed out the fallacy of the anti-vaccination contention that improved sanitation, apart from vaccination, has brought about the diminution in the spread of small-pox during the present century. Sanitation, he declares, has done little if anything either to destroy the power of the infection or to prevent its casual introduction developing into an epidemic. He shows from the statements of opponents of vaccination, like Dr. Wallace, that small-pox is different from zymotic diseases such as cholera, typhus and enteric fever, which are believed to be communicated through the dejecta of the patient contaminating drinking-water, and which can be controlled by sanitary measures, — for small-pox "is spread either by bodily contact or by transmission of germs through the air." It is obvious that sanitation cannot prevent the communication of

infection which is diffused by these means, though isolation may do a great deal; but isolation partially failed in Leicester in 1893 and much more markedly in Gloucester and Middlesborough subsequently. The difficulties of effecting isolation when an epidemic prevails are so serious as to be almost insurmountable, as boards of health in the large cities of England have testified.

We have place for only one piece of evidence bearing on this question which now especially interests sanitarians across the water, namely, the remarkable decline of small-pox in Glasgow in the early years of the present century. We have, first, the fact that small-pox did decline enormously in Glasgow from about the beginning of this century, and, secondly, that there were no sanitary improvements to account for this decline. A third fact in its bearing on the question is no less important: the general adoption of vaccination as a prophylactic measure synchronously with this decline.

The facts relating to the decline of small-pox were recorded by Dr. Robert Watt, of Glasgow, in 1813. The statistics cover thirty years, from 1783 to 1812. In the period prior to and including the year 1800, 19 per cent. of all deaths were due to small-pox. The actual figures are: total deaths, 31,088; and from small-pox, 5,958. After 1800 there was a great change; the actual figures for the five periods of six years each are given as follows:

Period.	Small-pox death-rate per 100 deaths from all causes.
I. 1783-1788	19.55
II. 1789-1794	12.22
III. 1795-1800	18.70
IV. 1801-1806	8.90
V. 1807-1812	3.90

The fact of the decline in the death-rate from small-pox is thus very apparent, as it was also in the mortality from the same disease in numerous other cities in England and elsewhere during the same period.

Dr. Watt now shows that while this decline went on, there were no such hygienic improvements in the city of Glasgow as to account for it on the hypothesis that it must have been due to defective sanitation. There was a rapid increase in the population from 1780 onwards. In that year the population was 42,832; it kept on augmenting every year till in 1811 it amounted to 110,000.

The earliest descriptions of the sanitary condition of Glasgow show that it was unspeakably vile. The lanes and alleys were reeking with disgusting filth, and "here and there was an opening for a pool of water from which there was no drain, and in which all the nuisances of the neighborhood were deposited in endless succession, to float and putrefy and wash away into noxious gases." Pigs, cows, dogs and human beings often occupied the same tenement, which too often was a cellar. Continued fevers were very prevalent, spreading from the ill-ventilated and ill-drained habitations. (See report of Dr. McVail in a pamphlet entitled "Vaccination or Sanitation.")

In 1837 Dr. Cowan, Professor of Medical Jurisprudence in Glasgow University, attributes the general prevalence of contagious diseases "to the total want of cleanliness among the lower orders of the community, to the absence of ventilation in the more densely peopled districts; and to the accumulation for weeks and months together of filth of every description in our public and private dunghills; to the overcrowded state of the lodging-houses resorted to by the lowest classes, etc." This report was followed by similar reports from Dr. Symons, Dr. Neil Arnott, and Mr. Chadwick, — the latter thought in 1842 "that both the structural arrangements and the condition of the population of Glasgow was the worst of any to be seen in any part of the kingdom." Dr. McVail declares that in dealing with this subject "we are dealing with a population in which sanitation is unknown; a population, moreover, whose health conditions appear to have been steadily going from bad to worse, owing to the rapid growth of the city." He adds (and this indicates the startling fallacy of the contention of Wallace *et id omne genus*): "Thus while insanitation was hurrying from bad to worse, till the startling conditions described in 1818 and later years were being approached, and while other infectious diseases of infancy were on the increase, small-pox was diminishing by leaps and bounds."

The above facts seem to dispose of the thesis that, as far as one important city in the United Kingdom is concerned, small-pox is a filth disease to be remedied and stamped out by improved sanitation; and the conclusion of Mr. Lloyd seems warranted that the decline in the mortality and spread of small-pox during this century must be due to some other cause or causes than those alleged by the anti-vaccinationists.

MEDICAL NOTES.

TYPHUS IN LONDON. — Three cases of typhus fever were reported in London during the week ending November 5th.

RESIGNATION OF MR. FREDERICK TREVES. — Mr. Frederick Treves has resigned from the Surgical Staff of the London Hospital, owing to the demands of his private practice.

A NEW WILL OF DR. THOMAS W. EVANS. — Word was recently received at Philadelphia that a later will of Dr. Thomas W. Evans, the millionaire dentist, had been discovered in Paris and is now on its way to this country.

EMPYEMA AT CAMP THOMAS. — The Pittsburgh (Pa.) Academy of Medicine will hold its eleventh annual meeting on Friday evening, December 2d, and Dr. Nicholas Senn will deliver an address on "Empyema at Camp Thomas."

DISEASE AMONG GERMAN CATTLE. — It is reported that according to official statistics German cattle are suffering to a large extent from tuberculosis. At least 40 per cent. of all the German cattle are re-

ported to have tuberculosis, and in some districts the percentage is as high as 79 per cent.

GERMAN TOYS AND POISON. — Dr. D. E. Salmon, chief of the Bureau of Animal Industry, in his report for the year ending June 30, 1898, states that in connection with the examination of imports from Germany, it was found that German toys and colored goods were poisonous, and all highly painted German toys may be regarded as very dangerous to children, who may suck off the paint or swallow pieces that may be chipped off.

PROFESSOR VIRCHOW RE-ELECTED. — At the general election of Deputies in Prussia, on November 3d, Professor Virchow was returned by the third electoral district of Berlin. The great pathologist, who is a Radical in politics, received 1,358 votes against 782 polled for a Conservative opponent. Professor Virchow this time received nearly 200 more votes than at the election of 1893.

DR. WILLIAM PEPPER MEMORIAL MEETING. — We learn from the *Philadelphia Medical Journal* arrangements have been perfected for the holding of a meeting in commemoration of the late Dr. William Pepper, in the chapel of the University of Pennsylvania, on the evening of November 29th. Governor Hastings, as president *ex officio* of the Board of Trustees, is expected to preside, and addresses are to be made by Drs. S. Weir Mitchell, Jas. Tyson, Mr. Daniel Baugh, and others.

THE COMPARATIVE LONGEVITY IN EUROPEAN NATIONS. — According to the *Bulletin Général de Thérapeutique* the average duration of life amongst the chief nations of Europe is as follows, the figures being based upon the bills of mortality for the decade 1881–90: Sweden and Norway, 50 years; England, 45 years and 3 months; Belgium, 44 years and 11 months; Switzerland, 44 years and 4 months; France, 43 years and 6 months; Austria, 39 years and 8 months; Prussia and Italy, 39 years; Bavaria, 36 years; and Spain, 32 years and 4 months.

A FATAL GLOVE FIGHT. — A fight with four-ounce gloves at the National Sporting Club in London, recently resulted in the death of Thomas Turner, twenty-three years of age, one of the contestants, who received in the thirteenth round a light blow close to the right eye. He collapsed, recovered sufficiently to stand up and shake hands with his opponent, and then became unconscious and soon died, the autopsy showing a clot of blood on the right side of the brain. The physician who made the post-mortem said that Turner's heart was weak and small, and the jury returned a verdict of "accidental death" with a rider suggesting that the Club require that contestants in glove fights be required to pass a medical examination before contesting. It is doubtful if a medical examination would have excluded Turner, whose death appears to have been due to the too great strength of his heart in pumping blood out of a ruptured artery than to its weakness.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, November 30, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 97, scarlet fever 52, measles 178, typhoid fever 21.

BEQUEST TO THE HARVARD MEDICAL SCHOOL. — By the will of the late Edward Austin, of Boston, the sum of $10,000 is bequeathed to the Bacteriological Laboratory of the Harvard Medical School.

THE "INVESTIGATING COMMITTEE." — The President's Committee on the management of the War Department is sitting in Boston this week. Drs. H. L. Burrell, Myles Standish, E. G. Brackett, R. C. Cabot and others have given testimony before the Committee.

AN ADDITION TO THE BOSTON DISPENSARY. — At a recent meeting of the Board of Managers of the Boston Dispensary, it was decided to begin work at once on the additions and improvements which have been planned. The estimated cost of these improvements is $65,000, and it is expected that they will be completed by next autumn.

IS THE PRACTICE OF CHRISTIAN SCIENCE DANGEROUS TO LIFE? — The Boston *Sunday Globe*, of November 20th, contained a signed editorial symposium upon this question, to which Dr. S. W. Abbott, of the State Board of Health, contributed a concise and judicious statement. We fear that, notwithstanding such statements, "pseudological inanities" will continue to succeed each other through brief periods of notoriety, and that the ignorant will continue ignorantly to declare what is wisdom.

NEW YORK.

THE DANGERS OF LAY INTERFERENCE. — In filing a certificate recently at the Coroner's office, regarding the death of a two-year-old child from diphtheria. Dr. John F. Woulters accompanied it with a note to the effect that the case had been seriously complicated by outside interference. When he was called to see the child he found that upon the advice of a neighbor rags soaked in kerosene had been applied to its breast, and kept there for several hours. As a result the skin was denuded for a space of six or seven inches, and the whole surface became rapidly covered with diphtheritic membrane. Death ensued in consequence. The use of the kerosene as a counter-irritant was undoubtedly due, he thought, to ignorance, as certainly only good intentions existed, but this act seriously complicated the case, and rendered a cure impossible. In conclusion, he stated that he reported this occurrence for the reason that the practise of interfering with the treatment of a physician is too common among the ignorant classes, and ought to be checked at every opportunity in the interest of humanity.

AN IMMIGRANT DIES FROM SMALL-POX. — A Syrian child, one year old, which was removed a few

days previously from the steamer *La Normandie* of the French line, died of small-pox at the Riverside Hospital on North Brother Island on November 25th. This is the first death from small-pox reported in the city for many months.

Intracerebral Injection of Tetanus Serum. — In a case of lockjaw resulting from the accidental amputation of the end of a finger, in the practice of Dr. F. L. Johnson, of Corona, in the Borough of Queens, an intracerebral injection of tetanus antitoxin was made by Drs. Albert C. Coombes and Deranbard, of Manhattan, on November 25th. The operation was followed by immediate improvement, and the patient is reported to be in a fair way of recovery.

An Embolus of Muscular Tissue. — The death of a patient in St. Catherine's Hospital, Brooklyn, is reported from a very curious cause. He was a young man whose face was terribly mangled by a gunshot accident, and the surgeons of the hospital had regarded their successful treatment of the case as a triumph of plastic surgery. On November 25th, while chatting in excellent spirits, he fell dead without a moment's warning, and the autopsy showed the sudden fatal result was due to a minute portion of muscular tissue from the wound which had been forced into the circulation, and finally made its way to the heart.

A Dinner to Dr. John P. McGowan. — On November 23d Dr. John P. McGowan was given a complimentary dinner at Fleuret's by the New York Celtic Medical Society, and was also made the recipient of a handsome loving-cup in token of the appreciation by his fellow-members of his services during the war. Dr. John Aspell presided, and among the speakers were Drs. Constantine McGuire, F. J. Quinlan and T. J. McGillicuddy. Dr. McGowan patriotically gave up a lucrative practice to become a surgeon in the New York Naval Reserve, and served with distinction on board the cruiser *Yankee*.

The New York State Association of Railway Surgeons. — At the eighth annual meeting of the New York State Association of Railway Surgeons, held in the Academy of Medicine Building on November 17th, the following officers were elected: President, Dr. T. D. Miller, Middletown; First Vice-President, Dr. J. L. Eddy, Olean; Second Vice-President, Dr. G. N. Hall, Binghamton; Secretary, Dr. C. B. Herrick, Troy; Treasurer, Dr. H. P. Jack, Canisteo. The morning session was devoted to a general discussion of "Surgical Service on Railways." In the afternoon the President, Dr. Herrick, delivered an address on "Surgical Technique," and a number of papers on various surgical topics were read and discussed.

The New Jersey Village for Epileptics. — The New Jersey village for epileptics has just been opened. The property, which is in the vicinity of Princeton, consists of 187 acres in a high state of cultivation and has an excellent water-supply. It was formerly known as "Maplewood Farm," and the old Voorhees mansion on it will constitute the nucleus of the village. The State authorities have also secured the right to purchase a tract of 213 acres adjoining, which will eventually be added to it.

Craig Colony Prize for Original Research in Epilepsy. — The President of the Board of Managers of Craig Colony offers a prize of $100 for the best contribution to the pathology and treatment of epilepsy, originality being the main condition. The prize is open to universal competition, but all manuscripts must be submitted in English. All papers will be passed upon by a Committee to consist of three members of the New York Neurological Society, and the award will be made at the annual meeting of the Board of Managers of the Craig Colony, October 10, 1899. Each essay must be accompanied by a sealed envelope containing the name and address of the author and bearing on the outside the motto or device which is inscribed upon the essay. The successful essay becomes the property of the Craig Colony, for publication in its Annual Medical Report. Manuscripts should be sent to Dr. Frederick Peterson, 4 West 50th Street, New York City, on or before September 1, 1899.

Miscellany.

"SURGICAL INTERFERENCE" OR "SURGICAL INTERVENTION"?

We have never understood why authorities in surgery use the word "interference" when speaking of operative or surgical treatment. When a surgeon performs an operation for the correction of a deformity, the mitigation of pain or the saving of life, does he mean to say that he interferes? If it be interference, then he is culpable; but certainly no operator will plead guilty to the charge of doing meddlesome surgery, and the inevitable conclusion is that the term "surgical interference" is a misnomer. Whenever we read it in text-books, or in current literature, we feel like substituting the word *intervention* for "interference," using the word intervention in the sense of interposition, or, better still, mediation — a coming between for a friendly purpose. The word interference suggests the idea of collision, clashing, opposition, officiousness, intermeddling, etc.

According to Webster: "A man may often *interpose* with propriety in the concern of others; he can never *intermeddle* without being impertinent or officious; nor can he *interfere* without being liable to the same charge, unless he has rights which are interfered with."

Let us see what Trench has to say. We quote: "In our practical use, *interference* is something offensive. It is the pushing in of himself between two parties on the part of a third who was not asked, and is not thanked for his pains, and who, as the feeling of the word implies, had no business there; while interposition is employed to express the friendly, peacemaking mediation of one whom the act well became,

and who, even if he was not specially invited thereunto, is still thanked for what he has done."

A few days ago we suggested this improved phraseology to two of our surgical friends, both of whom are teachers of surgery and liberal contributors to surgical literature. They agreed with us that the point was well taken, and announced it as their intention to adopt the suggestion. Speaking for ourselves, this journal will hereafter use the term surgical *intervention* instead of surgical interference, and we shall hope to see its general adoption by surgical writers. — *Richmond Journal of Practice*, November, 1898.

DIETARY CRANKS.

THE *Alienist and Neurologist* finds some amusement at the expense of the "dietary crank." It says: "A sect has lately arisen which has evolved a theory which is truly ponderous in the way in which it tramples down the joys of the table. The Ralston Club has solved the mystery of arterio-sclerosis. Their logic is simple. The arteries calcify; the lime-salts cause calcification; all foods except fruits and all natural waters contain lime-salts; *ergo:* eat nothing but fruit, drink nothing but distilled water. They apparently assume that with this one mighty brain-throb they have solved the problem of life, and that they have left men no shadow of an excuse for dying under two hundred years of age. The monkey, the nearest of kin to the hairy progenitor of man, is appealed to as a touching instance of plain living (we wish we could add high thinking, but though the apostles of Ralston may believe it they do not expressively say so). The monkey, they tell us, eats only fruits, and never drinks water with his meals. Presumably the reason why he fails of the double-century mark in respect of age is because he does not drink distilled water. The Ralstonites pause in their consideration of the animal kingdom with the monkey. This was unfortunate. The raven, for instance, lives to be one hundred years old. He lives on carrion. The next army of cranks may be induced to follow his example.

"The fruit-eating craze is possibly the most degenerate of the many recent fads. The fruit-eating and pot-bellied natives of the tropics and their next lower relatives, the apes, are truly inspiring objects of imitation by civilized man; not even their outdoor and arboreal lives save them from the consequences of a meagre and irritant regimen. It is truly pitiful to see the army of neurasthenics, dyspeptics and rheumatics, starving their tissues and acidulating their blood at the beck of a few, to put it charitably, hair-brained enthusiasts. It is fair to suppose that a troop of rickety children will later rise up and call them anything but blessed, a fate from which the ape saves himself by abundant potations of river water. The fact with regard to fruit is that although it contains little nourishment it agrees well with many people endowed with a vigorous gastric mucosa and fairly alkaline blood. To them it brings looseness and joy. In many dyspeptic states it is the first food-stuff to disagree, and to the ill-nourished neurasthenic it is a miserable substitute for the better tissue builders. An appeal to the facts of evolution gives little comfort to the cranks of one dietary idea. Primitive man has as hunter and herdsman thriven on an animal dietary. Nuts and fruits have served his turn as well, and encouraged him to the cultivation of the cereals. There is no evidence to show that the people of any nation have become longer lived or shorter lived on account of an exclusively vegetable dietary, or that any association of cranks has increased the longevity of its members by any exclusive system whatever." — *Food and Sanitation.*

THERAPEUTIC NOTES.

TREATMENT OF TETANUS. — In a circumstantial address on tetanus delivered before the Society of German Naturalists and Physicians,[1] Prof. R. Stintzig reviews the present status of serum-therapy in tetanus. His personal experience is such as to prevent him from forming any positive opinion regarding the value of the injections. Of three cases treated by the antitenanic serum, two, of great severity, but in whom the injections were made rather late (twelve and five days after the beginning of the convulsions), terminated fatally, while the third, a mild case however, recovered; the author is inclined to think that this third case might have recovered without the use of the serum. Even if we are to keep strictly to Behring's and Knorr's rule, that the injection is to be employed, at the latest, thirty-six hours after the appearance of convulsions, the results are not infallible; for out of fifteen cases thus treated (as collected from the literature of the subject) five recovered and ten were fatal. The difficulty in applying the treatment effectively is ascribed frequently to the impossibility of recognizing the disease early enough for treatment. He also brings forward the recent attempts of Krokiewicz to treat tetanus by the injections of an emulsion of brain matter, as it is thought that the spinal cord and especially the brain of every known animal species, including man, possesses certain properties which counteract the effect of tetanus poison. Krokiewicz treated one patient suffering from traumatic tetanus with injections of emulsion of brain matter in a normal salt solution, with a successful result.

FATAL SULFONAL POISONING. — O. Wein[2] tells of a case of fatal sulfonal poisoning, the symptoms of which began first with gastric phenomena, followed by various pareses, and only on the eighth day there appeared hematoporphynuria, which is ordinarily considered as a warning symptom that the drug has been pushed too far. Based on the result of this case, the author advises not to administer the drug but for a few days at a stretch, and then interrupt it for a period longer than four or five days, as has been considered sufficient heretofore.

CHLORANEMIA — (Subcutaneous injections of iron):[3]

℞ Ferri ammon. citratis . . . . . gr. xii
Aquæ destil. . . . . 3 ii

M. Inject into the interscapular region from eight to fifteen drops of the solution, which will equal one or two grains of the citrate of iron.

FOR URIC-ACID GRAVEL (Golding Bird):

℞ Sodi bicarb. . . . . ss
Acidi benzoin . . . . . ss
Sodi phosph . . . . . ss
Aquæ bullient . . . . . 3 iii

M. Dissolve and add:
Cinnamon water . . . . . 3 vi

S. Two teaspoonfuls three times a day.

[1] Münch. med. Woch., October 4, 1898.
[2] Berliner klin. Woch., No. 39, 1898.; Münch. med. Woch., October 4, 1898.
[3] Semaine Médicale.

Correspondence.

GLANDULAR THERAPEUTICS.

BOSTON, November 23, 1898.

MR. EDITOR: — In reading Herodotus the other day, I came across the following statement (Book IV, Par. 109): "By the Greeks, however, the Budini are called Geloni, though erroneously so called. Their country is thickly covered with trees of all kinds, and in the thickest wood is a spacious and large lake, and a morass, and reeds around it: in this otters are taken, and beavers, and other square-faced animals; their skins are sewn as borders to cloaks, *and their testicles are useful for the cure of diseases of the womb.*" As Herodotus flourished in the fifth century B. C., it would seem from the above quotation that the therapeutic application of animal glands is of somewhat ancient date.

Very truly,
J. W. COURTNEY, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 12, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1088	305	8.64	16.11	1.89	1.89	2.88
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	397	102	12.75	11.25	2.75	1.25	6.75
St. Louis	623,000	—	—	—	—	—	—	—
Boston	528,463	200	51	8.00	16.00	.50	2.50	3.50
Baltimore	506,389	171	46	12.76	11.02	.58	4.66	6.98
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	—	—	—	—	—	—	—
Washington	277,000	91	33	13.00	8.00	2.00	5.00	4.00
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	40	7	2.50	2.50	2.50	—	—
Nashville	87,754	48	17	20.80	12.48	4.16	2.08	14.56
Charleston	65,165	—	—	—	—	—	—	—
Worcester	108,240	28	4	3.85	7.70	3.85	—	—
Fall River	95,919	25	—	16.00	8.00	12.00	4.00	—
Cambridge	89,734	21	8	14.28	14.28	—	4.76	—
Lowell	88,641	24	9	16.64	12.48	—	8.32	—
Lynn	68,703	17	6	5.88	—	—	—	—
New Bedford	68,240	20	7	15.00	—	10.00	—	5.00
Somerville	68,101	10	2	10.00	—	—	—	10.00
Lawrence	57,283	13	4	7.69	7.69	—	7.69	—
Springfield	56,501	17	2	—	5.88	—	—	—
Holyoke	43,424	8	2	—	25.00	—	—	—
Brockton	37,278	6	0	—	—	—	—	—
Salem	36,883	—	—	—	—	—	—	—
Malden	34,613	—	—	—	—	—	—	—
Chelsea	33,468	9	2	—	11.11	—	—	—
Haverhill	32,022	7	1	14.28	14.28	—	14.28	—
Gloucester	30,589	5	—	20.00	—	—	—	—
Newton	29,716	6	2	—	16.66	—	—	—
Fitchburg	29,438	5	1	40.00	—	—	20.00	20.00
Taunton	28,167	10	1	10.00	—	—	10.00	—
Everett	25,338	11	4	9.09	—	—	—	—
Quincy	23,549	4	0	—	—	—	—	—
Pittsfield	21,643	—	—	—	—	—	—	—
Waltham	21,296	6	0	16.66	—	—	16.66	—
North Adams	20,971	5	1	40.00	—	—	20.00	20.00
Chicopee	17,842	1	0	—	—	—	—	—
Medford	16,511	5	1	20.00	—	—	20.00	—
Newburyport	14,915	4	1	—	50.00	—	—	—
Melrose	14,032	1	0	—	—	—	—	—

Deaths reported 2,803: under five years of age 608; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 236, acute lung diseases 310, consumption 304, diphtheria and croup 97, typhoid fever 55, diarrheal diseases 45, whooping-cough 11, cerebro-spinal meningitis 11, scarlet fever 8, measles 5.

From whooping-cough New York 6, Philadelphia 4, Washington 1. From cerebro-spinal meningitis New York 6, Baltimore 2, Boston, Lynn and Gloucester 1 each. From scarlet fever New York 5, Philadelphia, Boston and Washington 1 each. From measles New York 4, Boston 1. From malarial fever Philadelphia 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending November 5th, the death-rate was 17.0. Deaths reported 3,663; acute diseases of the respiratory organs (London) 237, diarrhœa 123, fever 91, diphtheria 69, measles 68, scarlet fever 43, whooping-cough 28.

The death-rates ranged from 6.7 in Croydon to 22.2 in Liverpool; Birmingham 18.8, Bradford 13.8, Bristol 13.0, Gateshead 16.6, Hull 16.8, Leeds 18.6, Leicester 16.7, London 16.1, Manchester 21.7, Newcastle-on-Tyne 18.7, Nottingham 18.5, Portsmouth 15.1, Sheffield 17.8, Sunderland 18.1, Swansea 18.4, West Ham 18.4.

METEOROLOGICAL RECORD

For the week ending November 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....6	29.62	57	61	53	89	86	88	S.W.	S.W.	18	10	R. C.	.56
M...7	30.09	42	44	40	66	58	62	W.	W.	16	8	C. C.	
T...8	30.29	48	60	36	67	63	65	S.	S.W.	12	16	C. C.	
W..9	30.33	52	59	46	63	78	70	W.	E.	6	7	O. O.	
T..10	30.00	45	48	42	85	100	92	E.	N.W.	20	9	R. R.	.99
F..11	29.82	42	47	37	96	70	83	W.	N.W.	10	20	O. C.	.31
S...12	30.30	40	48	31	60	44	52	N.W.	W.	12	7	C. C.	
	30.07	47	32	41	75	71	73			13	11		.24

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S. smoky; R., rain; T., thunderstorm; N., snow. † Inst. rain trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 19, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1075	198	7.92	17.82	1.80	9.90	3.24
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	—	—	—	—	—	—	—
St. Louis	623,000	—	—	—	—	—	—	—
Boston	528,463	222	67	4.95	23.85	.45	.45	1.35
Baltimore	506,389	179	62	17.36	12.82	2.80	2.24	11.76
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	91	33	21.80	11.99	8.73	1.09	7.63
Washington	277,000	—	—	—	—	—	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	64	20	4.68	12.54	1.56	—	1.56
Nashville	87,754	36	8	2.77	2.77	—	—	2.77
Charleston	65,165	28	4	—	3.57	—	—	—
Worcester	108,240	27	9	7.40	7.40	—	—	7.40
Fall River	95,919	27	13	22.20	7.40	22.20	—	—
Cambridge	89,734	16	5	6.25	25.00	—	—	6.25
Lowell	88,641	31	6	16.15	16.15	3.23	6.46	6.46
Lynn	68,703	14	1	—	—	—	—	—
New Bedford	68,240	20	8	25.00	10.00	5.00	10.00	—
Somerville	61,101	16	3	25.00	12.50	12.50	—	—
Lawrence	57,283	15	6	13.33	13.33	—	—	13.33
Springfield	56,501	6	2	50.00	16.66	—	33.33	16.66
Holyoke	43,424	—	—	—	—	—	—	—
Brockton	37,278	—	—	—	—	—	—	—
Salem	36,883	10	5	10.00	10.00	10.00	—	—
Malden	34,613	—	—	—	—	—	—	—
Chelsea	33,468	8	2	—	25.00	—	—	—
Haverhill	32,022	10	1	—	10.00	—	—	—
Gloucester	30,589	13	5	46.14	—	7.69	—	—
Newton	29,716	7	1	—	—	—	—	—
Fitchburg	29,438	9	2	—	11.11	—	—	—
Taunton	28,167	6	2	33.33	16.66	—	16.66	—
Everett	25,338	2	0	—	—	—	—	—
Quincy	23,549	6	3	—	—	—	—	—
Pittsfield	22,643	7	2	28.56	—	14.28	—	14.28
Waltham	21,812	—	—	—	—	—	—	—
North Adams	20,971	3	1	—	—	—	—	—
Chicopee	17,842	5	0	—	—	—	—	—
Medford	16,511	—	—	—	—	—	—	—
Newburyport	14,915	2	0	—	—	—	—	—
Melrose	14,032	—	—	—	—	—	—	—

Deaths reported 1,988; under five years of age 584; principal infectious diseases (small-pox, measles, diphtheria and croup,

cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 167, acute lung diseases 325, consumption 167, diphtheria and croup 76, typhoid fever 27, diarrheal diseases 25, whooping-cough 14, scarlet fever 9, cerebro-spinal meningitis 8, measles 5, erysipelas 3.

From whooping-cough New York 6, Boston and Pittsburg 3 each, Providence and New Bedford 1 each. From scarlet fever New York 7, Boston and Providence 1 each. From cerebro-spinal meningitis Worcester and Somerville 2 each, New York, Boston, New Bedford and Haverhill 1 each. From measles New York 5. From erysipelas New York 2, Baltimore 1.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending November 12th, the death-rate was 17.2. Deaths reported 3,706; acute diseases of the respiratory organs (London) 248, fever 96, diarrhea 85, diphtheria 77, measles 71, scarlet fever 42, whooping-cough 40.

The death-rates ranged from 11.3 in Croydon to 23.3 in Preston; Birmingham 18.0, Bradford 15.2, Cardiff 13.2, Gateshead 22.6, Huddersfield 15.8, Hull 18.1, Leeds 18.4, Liverpool 22.5, London 16.3, Manchester 21.5, Newcastle-on-Tyne 18.9, Nottingham 16.6, Portsmouth 17.6, Sheffield 16.8, West Ham 14.7.

METEOROLOGICAL RECORD

For the week ending November 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...13	30.16	44	52	37	65	73	69	S.W.	S.W.	3	9	C.	O.	
M...14	29.81	46	50	42	83	67	75	W.	W.	12	10	O.	C.	.20
T...15	30.17	42	48	35	73	57	65	W.	S W.	7	9	C.	C.	
W...16	30.30	46	54	38	63	68	66	W.	S.	7	3	O.	C.	
T...17	30.19	43	48	38	79	91	85	N.W.	E.	5	14	O.	R.	.22
F...18	29.92	46	47	44	96	98	97	N.E.	N.E.	12	4	R.	R.	.99
S...19	29.35	44	46	42	98	95	96	N.E.	N.W.	14	15	R.	R.	1.25
☞														

* O, cloudy; C, c'ears; F., fair; G., fog; H. hazy; S., smoky; R., rain; T., threatening; N., snow. † Ind cates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE THIRTY-ONE DAYS ENDING NOVEMBER 17, 1898.

WHEELER, W. A., surgeon. To rejoin station at Cincinnati, O. October 28, 1898. Granted leave of absence for fifteen days from November 16. November 15, 1898.

BANKS, C. E., surgeon. To rejoin station at Washington, D. C. November 1, 1898.

KALLOCH, P. C. To rejoin station at Cairo, Ill. October 28, 1898.

GLENNAN, A. H., surgeon. Granted leave of absence for fifteen days. November 1, 1898. To rejoin station at St. Louis, Mo. November 17, 1898.

WASDIN, EUGENE, surgeon. Granted leave of absence for ten days. October 27, 1898. Upon expiration of leave to report at Bureau for special duty. November 1, 1898. To proceed to Havana, Cuba, for special temporary duty. November 8, 1898.

WILLIAMS, L. L., passed assistant surgeon. Granted leave of absence for one month and fifteen days. November 1, 1898.

MAGRUDER, G. M., passed assistant surgeon. To rejoin station at Memphis, Tenn. October 28, 1898.

COBB, J. O., passed assistant surgeon. Upon completion of duties at Oxford, Miss., to proceed to Detroit, Mich. November 2, 1898. To report at Bureau for special temporary duty. November 10, 1898.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Havana, Cuba, for special temporary duty. November 8, 1898.

STIMPSON, W. G., passed assistant surgeon. To rejoin station at St. Louis, Mo. October 28, 1898. To inspect unserviceable property at Memphis, Tenn. November 1, 1898.

ROSENAU, M. J., passed assistant surgeon To inspect unserviceable property at San Francisco, Cal. November 7, 1898.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for fifteen days from November 15, 1898. November 4, 1888.

TABB, S. R., assistant surgeon. To report at Stapleton, S. I., for temporary duty. October 29, 1898. To report at Bureau for special temporary duty. November 1, 1898. Relieved from duty at New York and directed to assume temporary charge at Vineyard Haven, Mass. November 1, 1898.

HASTINGS, HILL, assistant surgeon. To proceed to New York for duty at Immigration Depot. November 4, 1898.

LAVINDER, C. H., assistant surgeon. To report at Bureau for orders. November 15, 1898. To proceed to Delaware Breakwater Quarantine and report to medical officer in command for temporary duty. November 17, 1898.

VON EZDORF, R. H., assistant surgeon. Granted fifteen days' extension of leave of absence on account of sickness. November 8, 1898.

FOSTER, M. H., assistant surgeon. Granted thirty days' extension of absence on account of sickness. November 8, 1898.

LUMSDEN, L. L., assistant surgeon. To proceed to Egmont Key for temporary duty. November 12, 1898.

WHITE, M. J., assistant surgeon. Granted leave of absence for thirty days on account of sickness from November 13, 1898. November 14, 1898.

HEINER, V. G., assistant surgeon. To proceed to New York for duty at Immigration Depot. November 7, 1898.

MCADAM, W. R., assistant surgeon. To proceed to New York for duty at Immigration Depot. November 7, 1898.

GWYN, M. K., assistant surgeon. To proceed to Boston, Mass., for duty. November 7, 1898.

Board convened to meet at Washington, D. C., at 10 o'clock A. M., November 9, 1898, to examine candidates for appointment as assistant surgeon. Detail for the Board: Surgeon GEORGE PURVIANCE, Chairman, Surgeon CHARLES E. BANKS, Passed Assistant Surgeon R. M. WOODWARD, Recorder. November 1, 1898.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held in the Anatomical Lecture Room, Harvard Medical School, on Monday evening, December 5th, at 8 o'clock.

The subject of the evening will be "The Medical Work of the Massachusetts Volunteer Aid Association at Santiago, Puerto Rico, Montauk Point, Chickamauga, Camp Alger and Boston." Communications are expected from Drs. E. G. Brackett, J. B. Clarkson, R. C. Cabot, W. H. Prescott, T. B. Shea, M. Standish, M. Prince, J. B. Blake, F. G. Balch and H. L. Burrell.

All members of the Massachusetts Medical Society are invited to attend.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.— The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, December 7, at 8.15 o'clock.

The meeting will be devoted to the presentation and discussion of a number of interesting surgical cases which will be shown by various surgeons.

"Spina Bifida with Report of an Operation on a Case Eight Hours after Birth; Recovery," Dr. R. W. Lovett.

The presentation of specimens, apparatus, etc., of surgical interest is also invited.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

RECENT DEATH.

JOSIAH MARK BLOOD, M.D., M.M.S.S., died in Ashby, November 19, 1898.

BOOKS AND PAMPHLETS RECEIVED.

A Note on the Bedborough Trial. By Havelock Ellis. London. 1898.

Tannigeno e Tannalbina. Pel Dott. Francesco Corletto. Bologna. 1898.

Vita'ity: An Appeal, an Apology and a Challenge. By Lionel S. Beale. Reprint. 1898.

Exiled for Les Majesté. By James T. Whittaker. Cincinnati: Curtis & Jennings. 1898.

Sporadic Cretinism in Ontario. By Alexander MacPhedran, M.B., Ontario. Reprint. 1898.

Transactions of the Medical Society of the State of West Virginia, held at Martinsburg, May 18, 19 and 20, 1898.

Ergot Aseptic. The Pharmacologic Assay of the Heart Tonics. By E. M. Houghton, Ph.C., M.D., Detroit, Mich. Reprints. 1898.

A Case of Forcible Reduction of the Deformity of Vertebral Tuberculosis; Death after Three Months and the Autopsy Report. By Harry M. Sherman, M.D., and Harold Brunn, M.D., San Francisco, Cal. Reprint. 1898.

Original Articles.

EXPERIENCES AT THE VARIOUS HOSPITALS IN THE DIAGNOSIS AND TREATMENT OF THE DISEASES PREVALENT IN THE ARMY.[1]

EXPERIENCES IN THE CARE OF THE SOLDIERS AT THE MASSACHUSETTS GENERAL HOSPITAL. BY H. F. VICKERY, M.D.

I INTEND to speak only a few minutes about this subject, which has been already so thoroughly gone over, and I would like, first of all, to say how much I am indebted to my chief assistant, Dr. G. W. Moorehouse, for very careful work in preparing the data for a review of my cases. Under my care came ninety soldiers in all, of whom three died — one from malaria of the remittent form and dysentery, one from typhoid fever with a very severe hemorrhage, one from typhoid fever complicated by that rare form of pneumonia in which the bacillus capsulatus is found — Friedländer's bacillus — which is a very fatal form of the disease.

About the general appearance of the soldiers, I was very much struck by the change in them, from what they were when they left the United States. They looked almost like foreigners, were very much emaciated, and very much pigmented; not merely sunburned, as seen upon covered parts of the body. This I ascribed to the destruction of the blood cells and a consequent deposit of blood pigment. In very many cases the nails showed this pigmentation. I never to my knowledge saw the nails after yellow fever, but the large majority of the men from Cuba had a line on their nails of natural color near the root, corresponding to the time since they had left Cuba, and, nearer the end of the finger a pigmented portion acquired in Cuba. Almost all of them had enlargement of the epitrochlear and other glands, and almost all, without regard to the disease they had, had big spleens; and it was our experience that whatever disease they had, quinine seemed to be good for them. If quinine was omitted from the treatment, some malaria popped up before they left. With the majority a very rapid improvement was noticed, beginning visibly the next day after arriving. The malaria of all kinds in our experience seemed to be benefited by quinine and the largest doses we used were fifteen grains at a time. That was given six hours before a chill if we knew when that was, or as the temperature began to fall after the chill. It was given in one large dose at either of those times, and at other times a common way was three grains three times a day, or four times a day, and sometimes as much as five grains three times a day. One or two cases had bisulphate of quinine injected subcutaneously. The one who died was treated so. The places where it was injected looked rather bad, looked something as I have seen places look where fluid extract of ergot has been injected. None of them came to sloughing in this man, perhaps he died too soon, but the benefit was not very great. Fowler's solution, in doses of about three minims, seemed to be of value in the severe cases, or those with crescentic forms. We had cases of dysentery, but never found any amebæ, and did not find any advantage in quinine as a rectal irrigation compared with other things, using also nitrate of silver, and normal serum solution and pure water. Much benefit seemed to come from a dose of castor oil in some of the cases of dysentery. The worst cases of dysentery did not seem to mind much anything we did; they kept on and apparently stopped when they got ready. It may be there were deep ulcers which took time to heal, but it was rather discouraging watching the patients. Diet did not seem to have much influence — I mean whether it was a diet of boiled milk, or, on the other hand, nitrogenous diet — it could not, to my mind, be proved that one was better than the other, but I was inclined to think that a complete change, as with a baby from a milk diet to a purely nitrogenous diet, seemed of some value, merely on the theory that if one kind of germs were being well nourished on, for instance the milk diet, a complete change in diet would cause that kind to wane or disappear. It had been said about these cases that a great many of them had had their stomachs all upset by quinine. So far as our experience went there were only one or two who vomited much, so that we did not find this injury from quinine. What was a remarkable thing, we seemed to get a good deal of benefit in the malarial cases from quinine, and yet cinchonism was not caused in more than two or three of all our cases. The benefit was got without those symptoms of the drug. Dr. Moorehouse has done an immense amount of work, which I mean to put in better shape to print, but it is no time to-night to read it. I think some of these charts might illustrate facts in a simple way, if they were passed around.

As to the prognosis of these soldiers, I think it is very likely that they will be troubled more or less off and on for a long while; the malaria will come and go, as they have bad luck. Here is the chart of a man who had the Widal reaction when he came in, and no plasmodia, and then, after almost three weeks, he had a chill and the malaria organism was found. Here is a typhoid that all of a sudden had a very typical malarial rise, although nothing was found. And here is a man who went out about ten days after he came in, his temperature having been normal a week, but I am sorry to say he was a hard drinker. He went out the 8th of August and came back the 22d of September, after a spree, very ill indeed. The crescentic forms had developed meanwhile. I will send the two charts around — the innocent one and the way he was finally. He got well. Here is a chart which shows how apparently amenable to quinine this crescentic form was. Here is a man who said he could not bear quinine in any dose, who took ten grains every morning for three mornings and it cured him. He did not feel it at all until he was told what he had had, and then he said he had had a headache every day. Here is a man who had severe dysentery and tertian fever. He had about six weeks of diarrhea and finally got well.

DISEASES PREVALENT IN THE ARMY AT THE BOSTON CITY HOSPITAL. BY HENRY JACKSON, M.D.

I was asked by the Secretary of our Society to say something on the soldier cases that I have seen this summer. I told him it was an immense piece of work to take hold of, and that the time was too short in which to write a paper giving a full account of the various phenomena; all I could do would be to give

[1] Read at a meeting of the Suffolk District Medical Society, October 19, 1898.

a short *résumé* of the general types which I had seen, and to say a few words on each of the types.

In the City Hospital there were, from the end of July to the first of October, somewhat over 400 cases admitted from the army. Of those, 126 were under my care. I have classified them roughly as follows: 65 cases of malaria, of whom 2 died; malaria and dysentery, 5 cases, of which 3 proved fatal; typhoid fever, 22 cases, of which 3 died; typhoid fever and malaria, 3 cases, one of which died; dysentery, 7 cases, none of which died; amebic dysentery, 1 case, which I will speak of later; he seems now on the fair road to recovery. I classed in a general way as debility 15 cases. In almost every one of those cases there had been a preceding history of fever, probably malarial: a more proper definition might be recovery from malaria. Two cases I classified as collapse: both of them got well; 2 cases were convalescents from yellow fever: they both recovered. In this preliminary list I have made I put down 3 cases as of doubtful diagnosis. The list perhaps ought to be much larger; some classified as malarial and typhoid fever ought to be thrown into the indefinite class. There was 1 case of simple jaundice.

Now to take up the 65 cases of malaria. The cases which I saw may be divided into four types: First, an irregular type of fever in which the temperature might on entrance be 101° or 102° F., in a day or two practically normal, in a day or two more rising to 101°, then normal, and again rising to a moderate point. I will pass about some of the charts. To refresh our minds I pass about on another sheet the ordinary tertian malaria we see about us. On that is also a chart of fatal typhoid fever from Chickamauga. In many of our cases of malaria the course of the fever was undoubtedly very much modified by quinine which had been given in Cuba in moderate doses and oftentimes in large doses in the ships on their return. Those on the *Bay State* were treated with large doses of quinine; those on the other transports received a certain amount of quinine. Then there was a remittent type of fever in which the fever ran along normal a few days, and then again passed through such a period of which I send around two charts. One is a very fair sample of remittent fever. It is not typical in that the first rise of temperature was not long continued though it was high on entrance, and we could not say what it was before he entered the hospital. The second part of the chart of his course in the hospital is perfectly typical of remittent fever. Then there was a type of fever of which I had a good many which I should call a sub-class of remittent fever, in which the course of the temperature was very long continued. These charts represent three weeks, and as you can see at a distance the temperature ran a course throughout that period, running at no time very high, averaging 101° to 103° F. A third type of malaria which we had was a type of what we might call intermittent fever, and yet there was not a single case in which we had the pure, absolute intermittent chart which we see in the Northern cases. I have no charts here to-night. The temperature would rise on one day, sink not absolutely to normal on the second day, as it does in the ordinary Northern type, that night be absolutely normal, to rise again the next day. The cases of this type, three in number, were very mild. They were amenable to treatment by quinine. After a single large dose of quinine the fever did not recur, which was very different from the other cases; the other cases had quinine during the whole course of the fever. The organisms found in these cases were apparently the tertian organisms; that is, it was not possible to differentiate them. In one case the diagnosis was made by the house-officer. He reported the tertian organism before he saw the course of the fever. Then comes the pernicious type. After we had had a good many cases of malaria I was talking with Dr. McCollom one day, and he said: "You must look out for the pernicious malaria. Before you know it some of these cases will develop a tremendously severe type of disease and die."

I had of what I call the pernicious type three cases; two died, one recovered. One of those who died was apparently in a fair way to recover, but he developed pneumonia. Whether that pneumonia was dependent upon the malarial organism or not I cannot say. The Southern writers claim that there is a pneumonia dependent upon the malarial organism in itself. I pass around two charts of this malignant type. The first man came in, as you will see by the chart, with a temperature of 98.6°, with a pulse of 90. In the course of the afternoon there was a tremendous rise of temperature to 105.8°, his pulse rose to 130, he was unconscious, his circulation was extremely sluggish, he was bluish and continued in an unconscious condition for the better part of two days. On the third day he was partially conscious, noticed the physicians, appeared to recognize his brother and we felt very hopeful about the case. Then he became very much worse. I found at each lower axillary region bronchial respiration and râles. I did not examine the backs. The autopsy showed he had a double lobar pneumonia, the process extending throughout both lower lobes. The second one came in unconscious and made a fairly rapid recovery, the temperature dropping in the course of three days to 100° and then to normal. Judging from this single case, which was the only one that recovered of the three, having passed through these severe paroxysms, they were apparently safer from subsequent fever than those of the remittent type.

Now the organisms which were found in these cases were the very fine hyaline intracorpuscular organisms and crescentic organisms with black dots in the centre. With the crescentic organisms go the oval organisms, sausage-shaped organisms. When the crescents were found at all they were found in great numbers. I have seen many fields of the microscope in which there were two crescents, and on moving the slide about with a little care you would find cases where there were three of these crescentic or oval organisms in a single field of the microscope. Associated with these hyaline and crescentic forms there were, in many of the cases, a few intracorpuscular, pigmented organisms. The pigmented organisms when present were different from the tertian pigmented organisms, in that the granules were larger; they were more motile, and the organism itself was smaller. In a very large number of the cases no organisms were found. I judge that the cause of that was that in so many of these cases quinine had been given; in many in large doses, and in most of them in some dose. I am more sure of that position in that in those cases that stayed a long time in the hospital organisms were often found late in the disease which had not been found previously, — the patients who stayed two or three weeks. Also, two cases went out of my wards and returned after two

or three weeks. During the first time that they were in the hospital no organisms were found, and on their return organisms were found in abundance.

Treatment of the Cases. — I treated all of these cases by large doses of quinine. I used what I should call a mixed treatment, that is, combining the so-called Dock method, of giving a single large dose of quinine when the temperature has fallen a degree, with the method of giving the continued doses of quinine. All of these cases received twenty grains of quinine when the temperature had fallen one degree after a rise in temperature. The temperature was taken every two hours. When it had dropped one degree twenty grains of quinine were given, and given always in capsule. I gave it in capsule because I was afraid to give it in solution on account of the danger of causing vomiting simply from the taste of the quinine, and I did not feel confidence in giving quinine in pills. To give twenty grains you have to give four capsules, it being so light. In addition to this single large dose which I tried, I think in every case (and in some cases I succeeded in stopping the temperature, though not in many) I gave fifteen grains of quinine during the day. Some of my colleagues gave that in one dose. I usually gave it in divided doses during the day. That was during the course of the fever. To every case that came into the hospital I gave two grains of quinine three times a day, on the theory of the Southern physicians, that you cannot cure anything in Florida, as I have heard them say, without quinine. Then, as to the treatment of these severe cases with collapse, the pernicious types. One case died, I am sorry to say, before I had known of the efficacy of treating pernicious malaria by subcutaneous injections of quinine. I found out afterwards that the Southerners say, that is the only way you can save them. I gave the case that recovered quinine subcutaneously. I gave it in large doses subcutaneously to the man who apparently was on the high road to recovery from his malaria, though he subsequently died from pneumonia. Quinine is very difficult, I found, to give subcutaneously. I had to give many large injections subcutaneously. I think about five grains to the drachm is the best I could do, adding tartaric acid to the bisulphate of quinine. I found that I could not dissolve the hydrochlorate of quinine in anything like the proportion of water which Thayer claimed. I was in Baltimore lately and hoped to ask him about it, but he was not there. He says the hydrochlorate of quinine is soluble in equal parts of water. I went to several apothecaries, who told me that was impossible. The form I used was five grains of bisulphate of quinine and five grains of tartaric acid in the drachm of water.

As to the course in these cases, it varied extremely. Some ran a very mild course, represented in two charts I passed about, perfectly well, clamoring to eat and get out, the temperature every now and then rising to 101° or 102° F. Some of the cases reacted very quickly to quinine after a single large dose, having no further fever. But of those there were only a few — some half-dozen out of the 65. The average number of cases ran a course of several days, so far as I could see, the course of the disease unmodified by the quinine given.

In malaria and dysentery, of which there were five cases, the diagnosis was made by the finding of plasmodia or by post-mortem examination. One of these cases was a typical case of remittent fever, with tremendously severe dysentery. The others represented the atypical forms of malaria, the temperature rising only occasionally. The treatment of dysentery was as follows: I gave them all irrigation, boric acid or soda or saline, bearing in mind the danger of rupture of the gut. In giving the injections the fluid was not forced into the bowel. In none of them did I raise the hips high, as you would raise them in giving an injection in a perfectly healthy gut, or in a gut that was not ulcerated. Morphine was necessary in most of the cases to relieve pain. So far as I saw, it had no effect whatever in controlling the movements; they would go on uninterruptedly, though morphine was given in as large doses as we cared to give it — I mean morphine and the various opium compounds. I had in several cases a good deal of success in treating them with a combination of mild saline with very small doses of morphine. I did not in most of these cases use a treatment. I suppose most of us here wash out the bowels thoroughly with large doses of salines, and attempt to keep the bowels quiet by morphine. I did not use that, as most of the cases were so sick that I felt any such method as that would wash the patient away as well as the bowel. In four of the cases I used the entirely empirical method of treating dysentery, which is employed so much in India and in China, namely, to treat by morphine and ipecac. I was very much surprised to find that I got fairly good results in two cases, and that in one case there were very good results; the character of the stools changed within forty-eight hours. Whether it was due to the treatment or not I do not even pretend to say, but it did no harm. I gave it to two extremely sick men — men as sick, I felt, as men could be. They were not nauseated; they were not depressed by the ipecac. I gave one-sixth grain of morphine, and half an hour later twenty grains of powdered ipecac in capsule. It apparently caused no nausea in any of the cases; there was no vomiting excited by the ipecac. In one case there was vomiting, but he had vomited for several days before that treatment was instituted.

Of the diet, all I can say is that I stuck as nearly as I could to albuminous diet, avoiding milk in large quantities. When I used milk it was peptonized.

There was one case of amebic dysentery. This case was of great interest to me, in that it was, so far as I could tell, the only case that I had seen shortly after the process had arisen. Such cases of amebic dysentery as I have seen have been cases that have, through months and sometimes through years, run the course of so-called chronic diarrhea, the amebæ being found late in the course of the disease. This was a perfectly healthy man, went to Cuba the first of July, taken sick some time the latter part of July, and so came under observation within a month after the process had started. There was no fever in this case; the leucocytes were normal. I gave him the treatment of amebic dysentery usually employed — quinine by rectum, and also quinine by mouth. He improved rapidly and went out yesterday apparently well. I feel there can be no doubt as to the amebæ being present. The diagnosis was confirmed by several observers, fortunately by Dr. Councilman, who, of course, is the most able to make the diagnosis. Also, the course of the disease was entirely different from ordinary dysentery. He would pass little bits of blood and mucus without any pain, without tenesmus.

Herpes was common in dysentery — herpes facialis.

In one patient I had a tremendous case of herpes zoster.

In general, in all these cases of malaria, and malaria and dysentery, one great factor was very prominent, — they had no chills. The temperature would shoot up to 104° or 105° F. without chill, without rigor. I think there were only two or three cases in which there was rigor, and when present it was not severe. There was not a single case where the bed would shake as it does in the ordinary case of stay-at-home malaria. Many of the cases were very anemic, several were severely anemic. In one there was intense anemia, so marked that there was apparently as a result of that a general edema. The urine was at no time abnormal. As soon as he recovered his color the edema disappeared. The average pulse in the cases of malaria was not very high, running 80 to 90 and to 100. Only in the pernicious cases was it very high; in those it ran to 130, 140 and 150.

Of the typhoid cases, several of them were convalescent when they appeared. The diagnosis was practically made by the Widal test, and, as a rule, all of the cases were mild; the fever was not high. One of the fatal cases arose late in the course, after the men returned from Cuba, and it was complicated by delirium tremens, which was apparently the immediate cause of death. The cases of typhoid which came from Cuba were not as severe as those which came from Chickamauga.

Of typhoid malaria there were three cases. In two of the cases, during convalescence, there was a sharp rise of temperature, and the organisms were found. In the other case the disease was not apparently modified by the malaria; the organisms were found, the Widal was positive, and the general condition of the patient was that of typhoid and not of malaria.

Of the cases that I have classified as debility, many of them were probably convalescent from malaria; many of them were markedly anemic. There were two cases only that were complicated with a tenderness which would suggest the presence of neuritis. Dr. Bullard was much interested in that process at the time, trying to find out whether the severe exposure these men had been through could start up a neuritis; it apparently had not.

Two cases I classified as collapse; and collapse they were without any definite etiology. The first case, my house-officer rightly said, was a case of cholera infantum. The man came in unconscious, vomiting everything, having movements constantly; he was cold, the temperature not quite 97° when he came in, and his pulse could not be felt. I arrived within an hour, and at that time there was just a flutter to be felt. That man recovered. He was not extremely anemic; he was not extremely emaciated; it seemed to be a sudden breaking-down. The second one was not so severe. I do not believe the first case I have spoken of would have stood a ghost of a chance of living if he had not been met at the station by Dr. Stedman, who gave him powerful stimulants subcutaneously, and he reached the hospital just alive. Stimulants were continued there; no food was given, and when I did give him food I treated him as you would a laparotomy — with half-teaspoonful doses of boiled water, as hot as he could take it. The other case was unconscious, but the pulse not very rapid.

All I wish to say about the two cases of yellow fever is to draw attention to what Dr. McCollom told me about, namely, that after convalescence from yellow fever you would find a yellow discoloration of the nails. It is rather uncanny to see about half of the nail yellow, and the pink at the lower part of the nail appearing, which had grown out since the convalescence. I do not know whether that is an original observation, but original or not it does not appear in the works on yellow fever. Both the cases showed it to a marked degree. Dr. McCollom said that that had enabled him many a time to make the diagnosis.

Then the mild cases of questionable etiology — of course there is nothing to say about these. The case of jaundice was apparently simple, mild catarrhal jaundice, and had nothing whatever to do with the fever.

Two or three points I wish to speak of in general. In the first place, as this is the first meeting of the Society, I think I may be allowed to speak of the general *morale* of these men. It is the most impressive thing I have seen in my life. The character of the men impressed one deeply. Their character was borne out by what I can tell you, that not only did they make no complaint of the treatment which they had had in the war, or in the hospitals or transport ships, but, what to me was still more remarkable, there was not a single case in which those soldiers boasted to me of what they had done, or even offered the suggestion that they had given their life for the country, and that therefore everything ought to be theirs. I think that is more remarkable than that they did not complain. That from a social point of view. From the medical point of view, the saddest, and yet the most encouraging, point about these soldiers was their vitality, the strength of their pulse — the most encouraging thing, because it enabled these men to pull through diseases that would seem impossible that men could live through, and the sad sight that men with such constitutions as that should be so reduced. Man after man came into my wards that were mere skeletons, men emaciated to a degree that I had not seen, except in the most advanced cases of lingering cancer, where the cancer may be situated in such region that it would not interfere immediately with life, and allow the patient to live as long as there was any vitality left. That is what a good many of these cases lived through; they lived as long as the heart could go. I was surprised to find the good condition of their skin. No cases came in with evidences of abrasions, or with evidences of lesions from vermin.

The diet was a very important factor in these cases, as it is difficult to feed those who have gone a long time without food in any walk of life, and we had the same factor to deal with in these soldiers. Their stomachs and intestines were not in a condition to stand large quantities of food, and we were obliged to feed them with the greatest care.

EXPERIENCES AT THE LONG ISLAND HOSPITAL.

BY J. J. MINOT, M.D.

I had at the Long Island Hospital about seventy cases all told, none of them as severe as some of the cases Dr. Jackson and Dr. Vickery have spoken of. I have almost nothing to say after these gentlemen have spoken, as they have covered the ground entirely. I saw all the different types that Dr. Jackson has spoken of except that I did not have any of the pernicious ones and none of my cases died. They were

all regular soldiers with the exception of a few recent admissions from the Ninth Regiment discharged from other hospitals and who had had a subsequent attack of malaria. They were all in pretty good condition, and have all done pretty well. There were about ten cases of typhoid fever. The interesting part was, that in those ten cases there were no plasmodia found until after they got through with what appeared to be the typhoid process, and had had a normal temperature a week or ten days, when several had what appeared to be a malarial process, and in some of these the plasmodia were then found. The chill in some was very distinct, and in one or two very severe; the severest were in men who had their first chill while in this hospital. A great many of them vomited in place of the chill; many had headaches, and many had no symptoms at all, that they or we knew, except the temperature. One of the interesting things was the length of the rise and fall of the fever. That varied in different cases; in some cases about twelve hours, and in some six, after it had started to rise until it returned to normal. Sometimes these rises would occur every day, for a number of days, sometimes every other day, and again irregularly. Many of my cases have stayed a good while, and some have had constant rises, some had no rise at all until they had been in hospital two or three weeks, but were very anemic and in wretched general condition on admission. They all got quinine in varying doses, and by all the methods usually employed. I could not see it had any immediate effect on them in any way, whether given in single large dose or a large dose combined with doses of five or more grains three times a day, or given in smaller doses. It seemed to me they had their temperature go up about when they got ready, and I could not have any effect on it at all, except of course as time went on the rises in temperature became less and less frequent and I suppose will eventually disappear. Some of the cases were interesting to me, in that they showed the Widal reaction, but did not have symptoms of typhoid fever. Where they got their Widal reaction from I don't know. One admitted he had typhoid fever three years ago, but that was the only one. I should think I had five or six of that kind, but they were unable to give a previous history of themselves; some had been sick a day or two, some had never been sick until they got on board the steamer coming to Boston, when they began to vomit, — quite a common history. One of the things that has impressed me very much was that we were able to distinguish inside of twenty-four hours, practically in a very large number of these cases, whether they were typhoids or malaria, malaria of the remittent type, where the temperature runs a number of days. One case in particular had no plasmodia nor Widal reaction, though repeatedly examined, but he had a temperature almost exactly like one of Dr. Jackson's remittent cases and like one of the cases at the Carney Hospital, which is now under my charge, where both Widal reaction and plasmodia were found.

THE CARE OF THE SOLDIERS AT THE CARNEY HOSPITAL. BY H. F. HEWES, M.D.

About one hundred and twenty of the soldiers who saw active service in the late war in Cuba were treated at the Carney Hospital. Of these eighty-eight came under my charge at some time in their illness. Of these eighty-eight cases seventy-three had malaria alone, none fatal; ten typhoid, none fatal; and eight dysentery, none fatal; seven of the typhoids had malaria also, and six who had the dysentery had malaria also; three of the cases had no disease which could be diagnosed at the time of their entrance. Of the eighty cases of malaria all had malarial organisms in the blood. I saw the blood of each case admitted at least once myself. If the finding was negative, the house-officer looked at the blood twelve hours afterwards; if this was negative, the blood was examined every third or fourth day as long as the case remained in the hospital. But eight cases remained in which the malarial organism was not found at some time. Of those, three were typhoid and two dysentery. The organism was found in the majority of cases upon the first examination, but in several it was found only on the fourth or fifth examination. Of the eighty cases of malaria sixty belonged to the type known as estivo-autumnal; six were pure tertian and six showed a mixed infection of the estivo-autumnal and tertian organisms. The differentiation between these forms of malaria was made entirely on the blood finding. A great variety of forms of parasite was found in the blood in looking over all the cases. In the thorough examination of the blood of as many of the eighty cases as possible, both in fresh and stained specimens, the following forms of organisms were found:—In the first place, by far the most common form of organism was a small form known as the hyaline form, an intracorpuscular, slightly motile, non-pigmented form, as a rule, eccentric and perhaps one-fifth or less of the size of the corpuscle in which it lay. This was either in the form of a sphere or had to the eye the form of a ring, frequently of a signet ring. Perhaps the next most common form was an irregular form, often slightly pigmented, in some cases looking very much like a cross; in others like a ring with one side broader than the other. Then we found in a great many cases clearly pigmented forms. These were either very sluggishly motile, with a few pigment granules of light color, typical of the estivo-autumnal cases, or perhaps of the same size or larger, but much more pigmented and actively motile; very different looking organism, although the size might be the same — the tertian form. Then there were found also in a few cases — the tertian cases — a form of this kind filling the corpuscle, full of pigment, very active; and also in some cases the segmented or sporulating form with a good many segments, and in a few cases even the flagillate form. In a considerable number of cases, in addition to these forms, there were found a crescent-shaped organism, sometimes taking an ovoid shape, intra- or extra-corpuscular, pigmented, the pigment as a rule bunched, but not always. In some cases a large extra-corpuscular form, fully as large as a red corpuscle, with pigment in it, very sluggish; in some cases forms which had the pigment all collected in the centre in a block. That represents, practically, the variety of organisms found in fresh and stained specimens.

Now as I put these down on the board they represent the cycles of the two types of malaria I have been describing. This upper line will represent fairly well the regular cycle of the estivo-autumnal organism seen in the circulating blood; the rest of the process takes place in the internal circulation. This line down here represents the cycle of the tertian organism very fairly, except that in addition we did find in one or two of the tertian cases a form like this, which is the very earliest form of the tertian, a kind of thin spider form

with thread-like processes. Now, as you see, the hyaline and ring forms are common to both. The hyaline form of the estivo-autumnal form is slightly smaller than of the tertian, but unless you measure them in each case you cannot tell the difference. These irregular forms are common to both. The pigmented form, one-third to one-half the size of corpuscle, is common to both, but has such different characteristics that the differentiation can be made. When you get beyond this point in the tertian you have forms which never can be confused with the estivo-autumnal, the full-sized pigmented and the sporulating forms. The sporulating forms occur in the estivo-autumnal, but I have never seen them in the peripheral blood. The crescentic form is the form which occurs out of the regular cycle. It may appear spontaneously after the other forms have been present. Several observers claim that they had seen the pigment in the crescent, not collected as in this drawing, but moving, and had seen the crescent change shape, become round and sporulate. This view is not held by most observers of American estivo-autumnal malaria, and Koch has recently published the result of his investigations on tropical African malaria, in which he says definitely that the crescent form is innocuous; may last in the blood an indefinite time, but cannot give rise to paroxysms or to auto-infection. He finds it unaccompanied by other forms.

MacCallum considers it to have the property of reproduction by a sexual process, distinct from sporulation. His investigations do not suggest that the crescent is innocuous.

To differentiate the estivo-autumnal and tertian types of infection we work upon the following lines:

If pigmented forms one-half to full size of the corpuscle, with fine pigment granules, numerous and very active, are present, or if sporulating forms are present, the infection is tertian. If pigmented forms less than one-half size of corpuscle, with few pigment granules with slight activity, be present, the type is estivo-autumnal. If hyaline or small ring forms only are present the development must be watched for diagnosis. If the development in the peripheral blood ends with the non-pigmented large ring, or the sluggish, slightly pigmented form less than one-half the size of the corpuscle, the type is estivo-autumnal. If the full-sized or active pigmented forms develop it is the tertian. If crescents are present the type is estivo-autumnal.

Both varieties of organism may be present together when we have mixed infection.

The afebrile period is the time to take the blood for diagnosis of estivo-autumnal. Within a few hours of the paroxysm is the time to diagnosticate tertian.

The characteristics of the blood in the two diseases differ in some other ways than in the organisms. The estivo-autumnal blood, as a rule, showed much deeper anemia. I have never seen such deep anemia in the blood of malaria about here as in many of these cases. The loss of hemoglobin in the corpuscles was particularly marked, and blasts were present in many cases. The tertian blood showed the large red corpuscles, larger than normal, characteristic of that malaria which did not occur in the estivo-autumnal. The estivo-autumnal blood showed a large amount of pigment in the leucocytes, which is characteristic of this form of malaria against the other forms. The blood seen in periods of quiescence, between weekly paroxysms, showed often only the small ring form.

I should say, that in the examination of fifteen cases the rings were the only form found on first examination, and it was impossible to make the diagnosis at once. In later examinations other forms were found in eight of the cases, but in eight cases we were still in doubt. In the apyrexia, after a paroxysm, or during the days of fever, the larger pigmented round forms and rings were found in these cases, showing them estival. The temperature charts suggested that these eight belonged to the estivo-autumnal type. I have some of the temperature charts of the estival cases, which illustrate the different temperatures which you get with practically the same blood finding. All these cases had the simple ring form at the first finding, and two later developed pigmented forms, two did not. You see how the temperature differed. These were under quinine throughout. One received quinine for two doses, and then for some reason the quinine was omitted, and he ran for two weeks without quinine. For that reason I suppose his chart is more like the regular form of fever. The temperature stayed up continuously in some, in others it would be up for two to four days, then normal, or 99° to 100° for ten days, then up again.

A comparison of the temperature charts emphasizes a very important point, namely, that the method of diagnosis by the blood examination is the only reliable method of differential diagnosis between the two types of malaria, included in these cases. Here are estival charts resembling the ordinary tertian. Here are tertian with quotidian charts, with remittent charts, and one with constant pyrexia.

In regard to the other symptoms I will say nothing, save to mention that one case had a malarial paroxysm which was associated with an acute jaundice. The man, who had been of perfectly normal color before the attack came on, became jaundiced inside of an hour — it seemed so — the liver was intensely painful to pressure, and the blood was full of organisms at the time, although previously nothing but crescents had been found. The man was dosed with quinine, and the whole thing subsided in twenty-four hours. Another case came in with acute nephritis, marked general anasarca and edema of legs, the urine containing one-half per cent. of albumin and typical sediment of acute nephritis. The malarial organism was found in his blood, and he was dosed with quinine, five grains every hour until he had taken twenty-five, and then five grains every four hours continuously. At the end of five days the amount of albumin in the urine had diminished to a trace, and the edema was disappearing. The quinine was then omitted by mistake, and at the end of a week he had another malarial paroxysm, and the urine contained nearly one-half per cent. of albumin again. I call this nephritis, because the man had edema associated, which is uncommon if not unknown in hyperemia The duration of the condition does not suggest acute nephritis, but we have had little experience with malarial nephritis here.

The result of treatment was much the same as Dr. Minot has mentioned. I should say, however, the average case was benefited distinctly by quinine, but I should not attempt to claim I had cured anybody, except the tertian cases, and not all of these. I had cases go three weeks without paroxysms, and develop paroxysms on removal of quinine. I gave to a certain set of men five grains every hour, until they had

taken thirty-five grains on the falling temperature, when the large estival forms were in the blood, and then five grains every four hours continuously for two weeks, and in some of these cases paroxysms developed, and during cinchonism organisms were found active in the blood. A number of other cases never had any temperature after the taking of the quinine. Chart No. III is one of the cases where the paroxysms came on after long omission of quinine. Where these paroxysms came on they seemed to follow exertion or exposure. This man walked a mile and came back, and had a paroxysm with the organisms very thick in the blood. This one sat by an open window. The absence of relapse seemed proportionate to the improvement in general condition. In closing, I will mention that in one case of typhoid (Widal positive) I found pigmented malarial organisms during the active typhoid — a finding which is rare, I believe.

ANIMAL *VS.* VEGETABLE FERMENTS.[1]

BY A. E. AUSTIN, A.M., M.D.

IT has long been known that vegetables and plants have digestive processes, almost, if not quite, analogous to those of animals; the sprouting grain, at certain temperatures, develops a ferment, the diastase, whose enzymogen doubtless exists latent in the seed until such time as conditions of temperature and moisture develop the fully active ferment from its parent or forerunner. Nor does the analogy end here; the sprouting plant can no more use the undigested starch than the animal body can, and hence the starch which the seed contains must be converted into maltose, in order to feed the young plant until it can obtain its nourishment from the earth and air in which it is placed.

The intermediate products between starch and maltose are also undoubtedly the same as those which exist in the digestion of starch by animal ferments, ptyalin and amylopsin, that is, soluble starch, erythrodextrin, achroodextrin and true dextrin, as well as isomaltose; (1) Papayotin, from the juice of the Carica Papaya, has likewise a strong digestive action upon albumins, converting them to albumose-peptone, but differing from diastase in that it seems to play a constant part in the digestion of the plant, (2) and thus differs from the action of the diastase which seems to simply meet an emergency and to be discontinued as soon as the plant has reached the point where it can provide for itself, much like those birds which instinctively digest the food for their young and feed them with the regurgitated contents of their own crops until such a time as the young can eat and digest the food in its natural state.

Nor do these vegetable ferments stop with the conversion of sugar, but some of them have the power of splitting up the glucosides into dextrose and other components. Emulsin, for instance, found in bitter almonds, has the power of splitting up, with the aid of water, the amygdalin, likewise contained in the kernels, into benzaldehyde, hydrocyanic acid and dextrose. (3) A fat splitting ferment has also been found in the castor-oil bean, in linseed and in corn. Nor do many of the plants stop with a single ferment but possess at least two and perhaps more. The juice of the fig-tree, pineapple and papaya, for instance, not only convert albumin into albumoses and peptones, but also have the power of coagulating milk in exactly the same manner as rennet from the calf's stomach, without change of reaction.

As a general thing, these ferments have been regarded by plant physiologists as having no importance, and as playing no part in the economy of the plant. This is clearly disproved by the fact that albumose-like substances have been found in the juice of papaya (2) and in that of the pineapple (2). It appears, therefore, very probable that plants have digestion exactly analogous to that of animals though the intermediate products may differ.

Becoming interested in this subject, it occurred to me that it would be of interest to compare the intermediate and final products as well as the relative strength of both kinds of ferments, and by the kindness of Messrs. Parke, Davis & Co. I was supplied with sufficient taka-diastase to carry on my experiments.

This substance is an almost white powder, and is claimed by the manufacturers to be made from a Japanese seaweed, which apparently has this power of digesting its amylaceous food like an animal.

At first my efforts were directed to determining its strength as a starch-converting medium as compared with pancreatin and saliva. In each experiment one gramme of starch was made into a clyster with 100 c. c. of water, stirred up cold, and heated to boiling while stirring. It was then allowed to cool and to one was added one-tenth gramme pancreatin, to another one-tenth gramme taka-diastase, and to the third one c. c. saliva. The flasks were then stoppered and allowed to remain in the thermostat at 40° C. for twenty-two hours. They were then taken out and the contents filtered, by which any undigested starch was removed, washed and the previous volume of 100 c. c. re-established. The sugar was determined by Fehling's test, and the sugar calculated as maltose, that is, 10 c. c. Fehling's is equivalent to .0778 grammes maltose, instead of .050 grammes as in dextrose, on account of the weaker reducing power of maltose. Then the amount of starch was calculated from the maltose found, an easy process, if we consider two of the simple molecules of starch, $C_6 H_{10} O_5$, as uniting with one molecule of water to form one molecule of maltose $C_{12} H_{22} O_{11}$, from which the percentage of starch from a certain amount of maltose would be 94.736 per cent.

The result of this tabulated is as follows:

First experiment, — Conditions, etc.			Presence of starch was determined by iodo-potass. iodide solution, when no blue was found starch was reported as absent.		
Ferment.	Starch converted grms.	Per cent. of total.	Starch.	Starch converted.	Per cent.	Starch.
Taka-diastase	.613	61.3	No	.9931	99.31	No
Pancreatin	.267	26.7	Yes	trace	..	Yes
Saliva	.199	19.9	Yes	.1553	15.53	Yes

For some reason the pancreatin in the second experiment failed to act with any energy.

It was next deemed important to increase the burden placed upon the ferment by increasing the amount of starch and to vary the period of digestion so that

[1] From the Chemical Laboratory of Tufts Medical School.

the amounts of starch were increased in the first to two grammes, in the second three grammes, and in the third four grammes. The results are tabulated as follows:

Ferment.	Period of digestion.	Amt. of starch in grammes.	Starch present.	Amt. starch converted in grammes.	Per cent.
Taka-diastase	43 hrs.	2	No	1.495	74.92
Saliva	" "	"	Yes	.3013	15.05
Pancreatin	" "	"	"	.140	7
Taka-diastase	21 hrs.	3	No	2.497	83.2
Saliva	" "	"	"	1.385	46.1
Pancreatin	" "	"	"	.6483	21.6
Taka-diastase	19 hrs.	4	"	2.29	57.2
Saliva	" "	"	Yes	.204	5.1
Pancreatin	" "	"	No	1.32	33

As one can readily see from the table, a prolonged digestion does not seem to increase the product of digestion with taka-diastase; in fact, there appears to be some loss from fermentation by which the sugars are broken up. The fluids took on a beery odor and fungi were seen in great profusion under the microscope. These fungi did not appear like the ordinary yeast fungi, but were smaller and less oval in form.

In order to be used therapeutically, taka-diastase must of course pass the stomach to reach the intestine, where conditions are most favorable for its action, and hence two points of interest present themselves for solution: Will it digest in an acid medium, and will its activity be hindered by the acid, even if afterwards rendered alkaline? It is generally recognized that the diastatic action of both pancreatin and saliva ceases in a medium containing a certain percentage of acid, but in order to continue the comparison three portions, consisting each of five grammes starch and 200 c. c. water, were prepared in the same way and after fully cooled, hydrochloric acid was added until the strength of the solution was equal to that of gastric juice, that is, about 2.5 parts per thousand.

Then pancreatin, saliva and taka-diastase were added to each in the same amount as before. They were digested for twenty hours, alkalinized and tested for maltose. Starch was present in all after this period, and only the preparation containing taka-diastase showed the presence of sugar, and that only in traces too small for estimation.

Again the same experiment was performed, but after twenty-three hours' digestion in the acid solution the latter was neutralized and allowed to digest twenty-four hours longer. Starch was found in all, but in each there was a trace of maltose, larger in the solution containing the taka-diastase, but still too small for determination by the method so far used.

This process was again repeated with two grammes of starch in 200 c. c. water, digested twenty-three hours in the acid solution, neutralized, and again digested three hours in an alkaline medium, and this time with better success. True, starch was still present in all, but while there was a trace of sugar in the pancreatin and saliva digestion, the taka-diastase showed 6 8 per cent. of the starch converted to maltose.

Thinking that perhaps with a shorter stay in the acid medium the ferment might make a better showing, the next solutions prepared in the same way were allowed to remain two hours in the acid medium at 37° C., were then neutralized, and digested two hours in the slightly alkaline solution, with decidedly better results, as shown in the following tables:

	Starch present.	Starch converted.	Per cent.
Taka-diastase	Yes	.149 grms.	7.4
Saliva	"	.068 "	3.4
Pancreatin	"	trace	0

These results would seem to prove two facts: first, that the action of taka-diastase is not wholly annulled in an acid medium, at least of the strength of gastric juice, and second, that all of the ferments are not destroyed by an acidity of this extent, and that upon being neutralized their action continues, though with varied energy and effectiveness.

This, it must be recognized, is contrary to the views of Chittenden and Griswold, who claim that ptyalin, at least, is destroyed by the action of the acid gastric juice and not merely rendered negative during its stay in the stomach, but in these experiments the evidence against their views appears so strong that we cannot gainsay it. As can readily be seen from comparison of these results with the previous ones, the shorter the stay in the acid medium, in this case two hours, as opposed to twenty-three hours, the less the action of both the saliva and taka-diastase is impaired, while little or no difference is seen in the pancreatin.

The results of these experiments would negative very strongly also the use of pancreatin as a digestant therapeutically unless it were enclosed in some substance like keratin, which would prevent the action of hydrochloric acid upon it while in the stomach.

The temperature at which taka-diastase is most effective, 40° C., seems to place it with the animal ferments rather than with the vegetable, of which diastase is the best known, whose most effective working temperature is from 53° to 63° C., as is well known. After the starch is converted into maltose the process is not complete; this is not the product suitable for absorption. The maltose must first be split up into dextrose (4), which is done ordinarily by the invertin of saliva and pancreatin, present only in slight amount, and more particularly by that of the succus-entericus. It appeared, therefore, worth while to see in what form these respective ferments delivered the sugar, whether maltose or dextrose. It is very generally stated that saliva (5) pancreatin and malt diastase convert starch only into maltose with a slight admixture of dextrose, but the products of taka-diastase digestion are, as far as can be learned, an unknown quantity. My first efforts were devoted to removing the starch undigested from three solutions prepared in the same way, and digested three hours, clearing the solutions by subacetate of lead and reading the amount of sugar with the polariscope.

After this, 100 c. c. of the solution were cooked twenty minutes with 10 c. c. hydrochloric acid, the previous volume of 100 c. c. re-established by adding water, and the reading of the polariscope again determined. Were the original solution maltose then the second reading will be less than a half of the first reading, since the maltose will have been converted by cooking with acid to dextrose, which, as is well known, has a much less rotatory power than maltose.

This was done and the results are as follows:

	Before heated with HCl.	After heated with HCl.
Taka-diastase	2.2%	2.1%
Saliva	3.4 "	1 "
Pancreatin	2.6 "	1.2 "

This would seem to show that the product of taka-diastase digestion is dextrose, while that of pancreatin and saliva is maltose, as is generally maintained, but this process is not free from error, since the amydulin and various dextrines may also play their part in the rotatory power of the original solution and may also be converted to dextrose by treating with hydrochloric acid. This, it was found, could be avoided by precipitating the intermediate product, with the exception of maltose, by alcohol, while the maltose and dextrose remained in solution in the alcohol. To this end, therefore, three starch solutions were prepared, each containing 25 grammes starch to a litre of water, to which were added respectively 25 c. c. saliva, 2 grammes pancreatin and 2 grammes taka-diastase. These were all allowed to digest sixty-eight hours at 40°, at the end of which period the digestion with saliva and pancreatin had starch remaining undigested, while that with taka-diastase had none. These digestions were taken out, warmed, filtered, evaporated to 100 c. c., filtered again and then evaporated to 25 c. c. Each of these was then poured, while hot, into 100 c. c. of hot alcohol in a flask, and allowed to stand twenty-four hours. All insoluble in alcohol was then found to be fully settled to the bottom of the flask, and the supernatant fluid poured off contained the soluble portion, containing either maltose, or dextrose, or both; 30 c. c. of this solution were diluted to 150 c. c. with water, and of this 50 c. c. were reserved for the determination of rotation by the polariscope, while the other 100 c. c. were cooked with 10 c. c. hydrochloric acid for twenty minutes, the volume of 100 c. c. re-established, after cooling by addition of water, and the rotation again determined.

The results were as follows:

	Before cooking with acid. Reading of polariscope.	After cooking ditto.
Saliva	4%	2%
Pancreatin	3.2%	3 "
Taka-diastase	3.5 "	3.4 "

This would tend to show that the results of the salivary digestion were chiefly maltose, while those of the pancreatin and taka-diastase were dextrose, with some admixtures of maltose. It shows, also, that taka-diastase converts much more starch to the final stage of dextrose than does pancreatin.

In order to verify the last result another digestion was prepared in the same way with the taka-diastase alone, and the same process of isolation of the dextrine closely followed.

This time the solution showed before cooking with acid a rotation equivalent to 5.4 per cent. dextrose, after cooking, 5 per cent. The identification with dextrose was made still surer by cooking some of the original solution with phenyl-hydrazin and sodium acetate, and only the crystals of glucosazon could be found, none whatever of maltosazon.

The microscopic differences of the crystals would seem to be sufficient to differentiate between them, though, of course, it must be acknowledged that determination of the melting-point would have aided greatly. These experiments would seem to give taka-diastase a power not possessed by malt, that of splitting up maltose into dextrose; in other words, it possesses a true invertin, an enzyme, possessed, it is true, by saliva and pancreatin, but only to a limited extent.

In summing up the results of this work some facts seem to be fairly well established:

(1) Taka-diastase possesses a greater power of converting starches, in proportion to its weight, than does saliva or pancreatin, though perhaps the test was not fair to saliva, as the amount, one c. c., was arbitrarily taken as an equivalent to one-tenth gramme pancreatin and taka-diastase; since, however, only 5½ parts per thousand of saliva are solid, 5.5 milligrammes are compared with 100 milligrammes. All of these digestants are practically nullified in an acidity equivalent to that of gastric juice, so that practically no digestion can take place in the stomach from any of these digestants.

(2) These digestants are not destroyed by the acidity of the gastric juice and there is no practical reason why their activity should not go on after they have passed into the intestines and alkalinity is re-established.

Taka-diastase apparently carries the process of amylaceous digestion a step farther than the other two, forming dextrose instead of maltose. In how far this is of value we cannot say until we know more about the condition attending the secretion of succus-entericus, which contains the major part of the invertin, and whether it is ever absent.

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OSSEOUS CYSTS OF THE MIDDLE TURBINATE WITH REPORT OF A CASE.

BY TIMOTHY J. REARDON, M.D., BOSTON.

After making a careful study of the literature of this subject, I have been able to find but forty cases; this number includes those mentioned by anatomists.

It was first mentioned by Santorini in his "Observationes Anatomicæ." In the living it was probably first observed by Dupuytren, who wrote of it under the title "Kyste a parois osseous pris pour un polyp fibro-celluleux." Chantreuil was the next to mention it. He, however, was an anatomist. He wrote of it under the title "Exostose celluleuse des fosses nasales." The specimen was sent to him by Professor Richel, who had removed it. Glasmacher wrote of it in 1884. A case is mentioned by Casabianca in his thesis under the title "Exostose spongieuse du vomer"; this case, Moure thinks, is similar to one of Bayer's, which the latter reported under the title "Cysts osseux de la cavite nasales."

Besides the foregoing cases, Butlin reports one of his own and one of which he knew, by Willet. Greville McDonald claims to have seen six cases; Schaffer, four cases; Schmiegelow, three cases; Steida and Knight, two cases each; McBride, Hajek, Wright, Joucheray, Frankel, Heymann and Rousseau, one case each.

Zuckerkandl states that he has observed it eight times in one hundred and seventy-two skulls. Steir has observed it in masculine skulls. Of the forty re-

ported cases, eleven were seen by anatomists and the twenty-nine remaining by the clinicians above mentioned. This case makes the thirtieth observed by a clinician. How many of the cases observed clinically were genuine cannot be stated, but that there is reason for doubting the authenticity of some may be seen later under my remarks on the pathology and differential diagnosis of these cysts. It would, perhaps, be a liberal estimate to state that not more than twelve are genuine.

Etiology. — Most cases were observed in adults and this led some observers (Knight and Bayer) to state that the cysts occurred in adults only. This is incorrect, as they have been seen by Steida in girls, aged seventeen and nineteen respectively. Chantreuil mentions a case in a young girl, but gives no age. It was thought that they did not occur in men, it being a curious coincidence that all cases observed clinically occurred in women, as did the one under discussion; this, however, Steir says, is incorrect, as he has seen it in male skulls. As to their origin, there are several theories which I shall discuss under the pathology of these cysts.

CASE I. Miss F. N., aged twenty-two, was first seen by me February 3, 1897. She has had headaches for the preceding two years; they dated back to a time when she had had several teeth removed. The headaches were mostly frontal, and, when severe, were accompanied by pain radiating to the left eye. She had complained for several years of a bad odor from her nose, of obstruction on the left side, of dropping in her throat and of loss of appetite.

Physical Examination. — Nose. Externally the nose was small and wide, in proportion to its height. The alæ showed but slight movement. The nares were wide. Internally the lower turbinate on the right was small, atrophied and covered with crusts. The middle turbinate was also slightly atrophied. The olfactory fissure was free. After the crusts were removed, no pus was observed coming from beneath the middle turbinate in the region of the hiatus semilunaris or from the olfactory fissure. Puncture of the antrum of Highmore was negative. Irrigation of the frontal sinus on this side was negative also. On the left side the apertura pyriformis was obstructed by a mass which hung directly down from its top. A probe, however, could be passed between it and the agger nasi. Further examination with the probe showed that the mass was covered by a very little cavernous tissue; externally toward the antrum it was quite closely approximated to the wall of the antrum, which was convex outward. Between the mass and the septum there was barely space for the passage of a probe. The mass almost touched the lower turbinate. A few small crusts were adherent to it. The lower turbinate was much atrophied. By anterior rhinoscopy nothing could be seen of the hiatus or the middle meatus posterior to the mass. No polypi were seen. The hard palate was very pale in comparison with the lips and cheeks. The pharynx was covered with a muco-purulent secretion; the larynx was normal.

On February 3, 1897, an operation was performed. After cocainizing with a 10-per-cent. solution, one-half of the mass was removed with a Krause's snare. It contained no pus or mucus and nothing of note was observed except that the lining was very pale. The specimen measured one and a half centimetres in length by one centimetre in width and one centimetre in depth. It was placed immediately in 95 per cent. alcohol. The nose was packed with gauze.

February 5, 1897. Headaches gone; removed gauze and repacked the nose.

February 7, 1897. Removed the remainder of the external wall of the cyst with Hartmann's conchotome. The external wall was not wholly removed at the time of the original operation.

February 20, 1897. Ozena unimproved.

March 5, 1897. Ozena still persists, but the patient had had no headaches since the operation.

Pathology. — Stained sections under the microscope showed the mucosa to be normal with its ciliary epithelium intact except in one or two places where slight ulcerations with surrounding cell infiltration were seen. The cavernous tissue, that is, the sinuses, was situated most thickly near the bone. The bone presented the changes observed by Steida, Lubarsch, Knight and others, namely: upon the bone layer was superimposed a layer of osteoid cells internal to which was thickened periosteum; internal to this lay a thin layer of detritus composed of crystals and fat. There was no lining mucous membrane internally. No bacteria were to be seen. In the periosteal layer one or two leucocytes were present, but not in sufficient numbers to suggest any inflammatory process.

The above description is similar to that given by Landgraf of his case. Steida's examination presents practically the same picture with three exceptions; in places he found small hollows in the osteoblastic layer which he considered resorptive places; he observed, too, a thick layer of connective tissue between the periosteum and the bone, and in his case mucous membrane lined the cells but mucous glands were not found. His results were confirmed by Lubarsch. McDonald in his cases failed to find mucous glands in the lining mucous membrane. To him, however, belongs the honor of bringing forward the osteophytic theory, which Knight, Steida and Lubarsch uphold. They claim with him that the thickened periosteum is due to hypertrophy of the middle turbinate body, and that by contraction of the turbinal tissue and diseased periosteum, incurvation is produced which continues until it again meets the body of the turbinate and thus forms a closed space. The enclosed turbinal tissue which accompanies this incurving atrophies and leaves a lining mucous membrane to the cyst thus formed. On the other hand, Fränkel, Heymann, Hajek and Zuckerkandl believe these cysts are congenital and owe their growth to suppuration. I agree with them that these cysts are congenital, but that they necessarily owe their growth to suppuration I deny; for the cases of Landgraf, Rousseau, Wright, and the present case were without a suspicion of pus on the inside. Their origin, I think, is due to one of two things:

(1) Ectasia of the ethmoid which, as the turbinate develops, becomes separated from it either completely, as in Landgraf's case and that of my own, or incompletely, as in cases of Steida, Joucheray and Bayer, in which cases the cysts had multiple compartments, some of which compartments were undoubtedly original ethmoidal cells. Zwillinger cautions operators not to mistake mucocele of the ethmoidal cells for a cyst and evidently intends the remark in reference to the so-called multiple form. The statement that the separation was complete in my case is based on the absence of a lining mucous membrane internally; it is thus

evident that the cyst had no communication with the surrounding cavities;

(2) An aberrated ethmoidal cell which developed in the turbinate. This is Heymann's theory.

The case under discussion resembles McDonald's in the presence of the periosteal thickening and the osteoblastic layer, but I ascribe these to a cause other than inflammatory. The layer of osteoblasts and the thickened periosteum seemed thickest in the centre, that is, on the interno-inferior surface where the curve was the sharpest; therefore, I looked upon the osteophytic changes as physiological and considered that they were produced to reinforce the bony layer at that point against the increasing pressure from the outside, caused by the growth which had filled the middle meatus. The wall of the cyst must have been subjected to an intermittent pressure at least, owing to the constant physiological changes in the volume of the turbinal tissue; furthermore, supposing that the cells were closed prematurely but still contained air, this air would be rarefied more or less by the growth of tissue enclosing it, to say nothing of the possible absorption of the components of the air, which would demand a reinforcement of the bone tissue. It would have been interesting to have ascertained the nature of the gaseous contents, but this was, of course, impracticable, as it was very small in quantity.

Symptomatology. — Usually the leading symptom is obstruction to the passage of air through the nose, yet that this may not be prominent is shown in this case, where the most prominent symptom was persistent headache, mostly frontal. Pain radiating to the eye may be complained of. According to McDonald and McBride, either frontal, ethmoidal or antral empyema may be present, for the cyst, by obstructing the hiatus semilunaris, may lead to it. Genuine atrophic rhinitis was present in my case and was apparently due in part to the presence of the cyst. Voice changes, denoted usually by nasal twang (Zwillinger), may also be present. Glasmacher's case was especially interesting on account of the nervous symptoms associated with it, such as insomnia, night cries, cautious gait and the sensation of having a swollen head; interesting too, on account of the curious objective symptoms it presented, such as swollen feet, together with asthma and orthopnea.

Of the physical signs in this case I have already spoken. McDonald observed a slight broadening of the root of the nose; this was not present in my case.

Differential Diagnosis. — The pathological condition simulating most closely the one under discussion is a dilated ethmoidal cell, situated behind the hiatus semilunaris and called "bulla ethmoidalis." This may become quite as large as a cyst of the turbinate and may be deceiving, because it often pushes the middle turbinate upward and conceals it from view. Zwillinger states that this dilated cell has been mistaken for a cyst of the turbinate.

Careful examination, however, will distinguish between them. Osseous cysts of the turbinate are situated nearer the top of the apertura pyriformis (agger nasi); in fact, they may seem to be dependent from it, as in the cases of Zwillinger and in the present case. The presence of polypi anterior to such a mass would make it more probable that it was a dilated "bulla ethmoidalis." In some dozen cases of enlargement of the bulla ethmoidalis that have chanced to come under my observation polypi have invariably been present and it was only after their removal that the bulla ethmoidalis was seen. The bulla is always a considerable distance from the agger nasi. In these cases, if the middle turbinate cannot be seen at first, operative interference will reveal it unscathed.

Histologically, the cysts and the bulla ethmoidalis differ greatly; for, while turbinal cavernous tissue covers the cysts, the bullæ have no such covering. Lining the bulla internally there is always a mucous membrane, and in the cases I have seen pus has always been present, a fact which I think explains the distention of the bulla. In true cysts of the turbinate a lining mucous membrane and pus may or may not be present. A much curved turbinate may simulate closely a cyst of that bone, but in histological examination the location of the cavernous tissue would differentiate clearly between them.

Hypertrophy of the anterior end of middle turbinate may on account of its size and color simulate a cyst of the turbinate; but examination with the probe will eliminate it. Polypi containing bone, as described by Zarniko and Manasse, can be eliminated by their easy displacement. Furthermore, a localized spot on the turbinate may be bullous in form and there may be difficulty in distinguishing it from a cyst, but not being a complete cell, it is hemispherical in form; besides, its convexity is toward the septum and blocks the olfactory fissure. Again, an inverted turbinate may deceive us; but this, instead of having the concavity directed outward, has it directed inward and the convexity is inward towards wall of antrum.

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Clinical Department.

A CASE OF CALCULUS OF THE UVULA.

BY J. L. GOODALE, M D., BOSTON.

THE following case is unique in several particulars, so far as is shown by an examination of the literature accessible to me.

The patient, a female, colored, two months of age, was brought to me for choking and obstruction to breathing. These symptoms had been present since birth, and within a few weeks had increased in intensity. Examination showed that respiration in an upright position was essentially normal, being per-

formed easily through the nose. When the child was placed on the back, a considerable amount of obstruction to nasal respiration was apparent, resembling that caused by hypertrophy of the pharyngeal tonsil. The child nursed well in an upright or nearly upright position, and except for slight constipation showed no other abnormal symptoms. Inspection of the oropharynx showed on the anterior aspect of the uvula, midway between the tip and junction with the soft palate, a white globular mass, about four millimetres in diameter, lying apparently immediately beneath the epithelium. The epithelium covering it and that in the neighborhood were of normal lustre, and without reddening. The consistence of the mass, as shown by the probe and forceps, was of bony hardness. It was readily enucleated by the cutting forceps. Slight hemorrhage followed and quickly ceased. Under a pressure of about three pounds, the calculus broke into yellowish-white fragments. These were seen under the microscope to consist of amorphous particles, together with fat-crystals, fat-drops and fatty-degenerated epithelium.

One week after the removal of the calculus, the wound had healed, and respiration in the recumbent position was decidedly freer.

It seems most natural to suppose that the mass was situated in a dilated mucous gland and had arisen through obstruction of the duct of the latter. It seems also probable that the interference with nasal respiration was caused by the mass acting as a weight upon the uvula to occlude somewhat the nasopharynx.

While no cases of calculus of the uvula have been reported, so far as I am aware, there have been at least three instances recorded of calculus of the soft palate. In all probability the pathology of the two conditions is the same.

The first two cases of calculus of the soft palate are reported by Anselmier.[1] In one case, a boy, aged sixteen, presented with a history of difficulty of deglutition and respiration, which had lasted some time. Two masses were found on the soft palate, one on either side of the uvula, about the size of a hazel nut, which, on probing through the dilated mouths of the palatine glands, were found to be calcareous.

The insertion of a tampon saturated with dilute sulphuric acid into these recesses resulted in completely dissipating the calcareous masses. The other case occurred in a man, aged twenty-five, in whom were observed three of these masses. The same treatment was successful in this case.

C. A. Parker[2] reported in 1893 a case of calculus of the soft palate, occurring in a man, twenty-nine years of age, who had had post-nasal growths removed three years previously, and who complained of great soreness of the throat for the last six or eight months. The calculus was situated in the substance of the soft palate just to the right of the base of the uvula, a portion lying free and resembling a sloughing ulcer. The calculus was removed from what was apparently a cul-de-sac between the muscular layers, and when dry weighed fifty-four grains. It was composed of epithelial *débris*, spores and gladothrix mycelium, together with earthy salts.

[1] Cited by Bosworth: Diseases of the Nose and Throat, vol. II, p. 361.

[2] Proceedings of the Laryngological Society of London, December 13, 1893.

A CASE OF CEPHALIC TETANUS.[1]

BY GARRY DE N. HOUGH, M.D., NEW BEDFORD.

On November 19, 1897, Charles Dunham was struck a blow on the nose by John Bryden. The blow made a small wound which bled quite profusely. The bleeding was checked by pressure with a dirty handkerchief.

On November 26th a physician was called for the first time, the complaint being stiffness of the jaws. Next morning the patient was sent to the hospital.

The symptoms were: trismus, inability to articulate, inability to swallow, tetanic contractions of the muscles of the neck, a few convulsions, fever, rapid and weak pulse, death. The noteworthy feature was the limitation of the tetanic symptoms to the head and neck.

On the bridge of the nose was a foul ulcer about the size of a five-cent piece, partially covered by a scab. Cultures were made from the pus under this scab, but nothing resembling tetanus bacilli was found.

When I examined the body I found, besides the ulcer on the nose, a very recently cicatrized wound about one inch long on the dorsum of the left forearm (to a part of which a scab was still adherent), and on the left great toe a tiny ulcer, due to an ingrowing nail (perhaps an eighth of an inch in diameter).

Internally I found: some congestion of the pia mater, hypostatic congestion of the lungs, parenchymatous degeneration of the heart muscle, a somewhat enlarged and softened spleen, congested kidneys, and otherwise normal organs.

Death took place on November 28th, autopsy on the 30th.

Bryden was indicted for manslaughter. I held that it was not yet established as a scientific fact that the form of tetanus called "cephalic" was necessarily the result of infection through a wound situated in the region of distribution of the fifth nerve and that, therefore, since two other recent solutions of continuity existed in the body, it could not be made out that the blow on the nose was the cause of death.

My opinion, of course, was founded on the literature accessible to me. Was this opinion, in the judgment of the Society, justifiable?

[1] Read before the Massachusetts Medico-Legal Society, October 5, 1898.

Medical Progress.

REPORT ON PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 22, p. 548.)

INGUINAL HERNIA OF THE URINARY BLADDER.

Volume XX (1898, s. 727) of the *Beitr. Z. Klin. Chir.* contains a very interesting and valuable article relating to this rare lesion by G. Lotheissen of Innsbruck. He has observed seven cases and has personally operated on six in which the bladder was recognized and not injured. The literature at his disposal contained 138 cases. The Innsbruck records show that it occurs in 3.2 per cent. of all inguinal hernia. It is found in old people and particularly in men. The lesion is an intraperitoneal cystocele, an extraperitoneal cystocele, or as a mixed form. The intraperitoneal and mixed types occur externally or to the outer

side of the epigastric vessels. The extra-peritoneal hernia to the inner side of them, that is, towards the median line, and appear always as a direct hernia. The lesion must be regarded as acquired. There are usually no symptoms, but when symptoms do occur there is painful micturition, vesical tenesmus, etc. The condition characteristic of a cystocele is an inguinal swelling which is distended before micturition and collapses completely after the act. Usually one first recognizes the cystocele during a hernia operation by the position, and if the necessary caution is used an injury to the bladder can be avoided. A clean dissection of the sac is the surest way to recognize the anatomical relations. One sees a muscular layer having a mesh-like appearance. The bladder can also be demonstrated by the passage of a sound or distention with any suitable solution.

The bladder has been frequently injured during operations on unrecognized cystoceles (inguinal) thirty-seven times in sixty-five cases. Several times it has been transfixed by the deep sutures. A number of deaths have resulted from these unrecognized injuries but this now rarely occurs.

The treatment is only by operation.

If the bladder is recognized and is uninjured the prolapsed part is replaced, which is usually easily done in the intra- and extra-peritoneal forms. In the mixed forms one often finds firm adhesions between the bladder and the hernial sac which must be carefully separated. In incarcerated cases gangrene of the bladder wall is not usual and the treatment is the same as for an ordinary case of incarcerated hernia. Gangrene however does occur, and then one must either leave the prolapsed bladder in the wound for the necrosed portion of the bladder wall to separate spontaneously, or one at once resects the gangrenous portion and unites the bladder wound by primary suture. Lotheissen recommends the former method. Classification of the collected cases shows (1) that a diagnosis was made without operation in 11 cases; (2) inguinal cystocele was found at autopsy in 14 cases; (3) the bladder was unrecognized and injured during operation in 65 cases; (4) it was recognized during the operation and not injured in 38 cases.

TREATMENT OF VARICOSE VEINS.

Hotzmann[12] has written an article relating to the treatment of varices and some of their complications. The actual clinical data has been collected from the record of 40 cases. In brief, his conclusions are:

(1) The most rational and best treatment in all cases of varices of the leg with insufficiency of the saphenous, especially if the varices are a burden to the patient and cause complications, is single or multiple ligation and division of the long saphenous.

(2) This ligation, which overcomes the trouble and complications due to the insufficiency of the saphenous, has little influence on the chronic edema.

(3) Varices, as such, are not permanently relieved by the Trendelenburg method of ligation.

(4) To overcome the chronic edema and the varices also which are so extended that the ligation of the saphenous is not effective the combination of the Trendelenburg ligation with extensive longitudinal incision along the leg through the venous knots and anastomoses down to the muscular fascia (Ledderhose method) is recommended. These are made with the leg raised perpendicularly and immediately closed with a continuous suture. A compression bandage is applied.

[12] Strassburger Dissertation, 1896.

SARCOMA AFFECTING LONG BONES.

Reinhart[13] has reported the results of his investigation of sarcoma of the long bones observed at the Göttingen Klinik during 1880–1895. He collected 54 cases. The growth occurred most frequently in the upper third of the tibia and lower third of the femur. He attributes this to the fact that at these points the epiphyseal line remains longest cartilagenous (to twenty-second year of life) of the long bones.

Reinhart classifies the tumors as (1) pure periosteal sarcoma; (2) sarcoma both periosteal and osseous, that is, involves both; (*a*) origin probably from periosteum, (*b*) origin probably from bone. (3) Pure central sarcoma. Class 3 is more frequent than Class 1. Class 1 is found most frequently on the shaft of the bone. Class 3 near the epiphyseal line, but the portion primarily affected is on the shaft side of the epiphyseal line and not on the epiphyseal.

In regard to age, the tumors occurred most frequently in patients between fifteen to twenty-five years; but the range extended from ten to sixty-seven years of age. There were forty males and fourteen females. Traumatism as a possible cause was reported in one-sixth of the cases. The difficulty in diagnosis was most frequently to distinguish a sarcoma from tuberculosis near the epiphysis. This was accomplished in several cases only by an exploratory incision. Fracture of the bone occurred in nine cases (femur five times, humerus three, tibia one). More recently the bony changes that can be demonstrated by skiagraphy assist much in diagnosis. Treatment was almost without exception amputation or exarticulation. Partial extirpation of the smaller bones in cases of giant cell sarcoma, for example, tarsus, os, calcis clavicle. In other forms Reinhart warns against partial excision, since occasionally isolated nodules occur in the shaft of the bone separate from the main growth. Death by recurrence and metastasis occurred in several cases two to three and four years after the operation. In estimating the end results no cases are considered which were seen later than the autumn of 1891. Of these, thirty-nine in number, eighteen per cent., have remained cured, one after eleven to twelve years, two after ten and three after eight years. Four patients died at once after the operation, namely, two after exarticulation of the hip, one of the shoulder and one curetting out of a large necrotic bone growth of the femur.

[13] Deutsche Zeitschr. f. Chir., xlvii, 633, 1898.

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Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL MEETING, HELD AT OTTAWA, CANADA, SEPTEMBER, 27, 28, 29 AND 30, 1898.

THE Association met in the Railway Committee Room of the House of Commons, under the Presidency of DR. CHARLES A. LINDSLEY, of New Haven, Conn.

At the opening session twenty-six applications for membership were read and acted upon favorably.

Resolutions were presented by MR. HENRY LOMB, setting forth the desirability of sustaining all existing voluntary sanitary organizations and outlining a plan for the multiplication and extension of them. The most promising direction in which energetic efforts could at present be exerted would be to devise and establish, on a permanent basis, a system for the instruction and training of persons who were already pursuing, or who may desire to engage in, the business of sanitary inspection. It was therefore,

Resolved, That while the Association recognizes the value of the local auxiliary sanitary societies in many of the States, yet effectual enforcement of the laws and ordinances designed to prevent the spread of diseases can best be assisted by supplying for employment by executive health officers men who have been taught the art of hygiene.

The Association concurred in the resolutions.

DR. C. L. WILBUR, of Lansing, Mich., offered the following resolutions, which were referred to the Executive Committee:

Resolved, That the American Public Health Association earnestly recommends that a plan be incorporated in the act to provide for the taking of the next United States census whereby reliable representative vital statistics may be secured for the non-registration States.

Resolved, That the Association recommends that the Bertillon classification of causes of death be adopted by all the registrars of vital statistics in the United States, Canada and Mexico as soon as the change from the systems now in use can be conveniently made.

Resolved, That the Committee on Nomenclature of Diseases and Forms of Statistics be authorized to have printed and circulated among the registrars of the three countries a circular containing these resolutions, the report of the Committee on which it is based, the three alternative forms of the Bertillon classification, with explanatory notes on inclusion of terms, and practical rules for compilation, and a list of the registration offices adopting the same.

Resolved, That a proposal be made for an International Alliance between the registrars of the three countries included in this Association and the registrars of France and other countries now using, or which shall hereafter adopt, the Bertillon system, and that definite plans for such Alliance shall be submitted for action to the next Annual Meeting of this Association.

The Executive Committee subsequently recommended the adoption of the above resolutions, and they were unanimously concurred in by the Association.

DR. JOHN L. LEAL, of Paterson, N. J., read a paper entitled

AN OUTBREAK OF TYPHOID FEVER DUE TO AN INFECTED WATER-SUPPLY.

The author dealt with the pollution of water as supplied to the residents of that city. The outbreak established the fact that the germs originating in a single case of typhoid fever might infect even a large body of water so as to reproduce itself among those dependent upon the same body of water for their public supply, even though the supply be taken at a point some distance from the focus of infection. The cases of typhoid, in the present instance, had developed as follows: During the last half of September there were 26 cases; October, 41 cases; November, 108 cases; December, 58 cases. The disease was evenly distributed throughout the city, except in one district containing about 2,000 people, and among all classes of the inhabitants. No possible common means of infection could be found except the public water-supply, upon which all of those infected, with the possible exception of two or three, were dependent for at least a portion of the twenty-four hours. The only section of the city which did not contain a single case was not furnished with a public water-supply. The water was taken from the Passaic River. No evidence was shown above the falls of harmful pollution. Below the falls chemical evidence of harmful pollution was found. After stating the time during which infection existed in the stream, he related the case of a patient who had returned from a summer resort suffering from typhoid, who practically recovered, but later was taken with a relapse, which lasted about a month before convalescence began. The river had been more or less continuously infected by cesspools from September 1st until November 24th, when the discharge pipe was discovered and further infection from that source prevented.

DR. PETER H. BRYCE, of Toronto, read an exhaustive report as Chairman of the Committee on

THE CAUSE AND PREVENTION OF INFECTIOUS DISEASES.

He stated that infectious diseases must be divided as regards their mode of causation and their growth and development.

With reference to the methods for suppressing out breaks of diphtheria in a community, he said that further experience in Ontario during the past year had shown that the following seems the most effective and prompt means of stamping out an outbreak: In a number of municipalities where the disease appeared, as it always does, principally amongst school children, the practice was introduced of a morning visitation by the Sanitary Inspector to all the public schools to obtain a list of the day's absentees. The homes of these were promptly visited, and where any evidence

of malaise and sore throat was present, the parents were at once required to send for a family physician and have a swab taken and forwarded to the Medical Officer by the afternoon. These were sent at once by mail to the laboratory, and the patient isolated until an answer by telegraph of the result of the examination was received. Where the cases proved to be diphtheria, the patient was isolated until further examination proved the freedom of the throat from bacilli. The children of the household were kept from school and the public, and the home subsequently disinfected with formaldehyde where the child had not been removed to the hospital.

The essayist then briefly referred to the progress made in medical knowledge, both with regard to the inoculation and dissemination and prevention of tuberculosis. The experiments of Pflugge regarding the dissemination of dust and germs of disease by air movements in houses go to show that "in those cases where inhalation-infection has been successful sprayed moist sputum has always been used." The author concludes that in diphtheria, scarlet fever, consumption, influenza, etc., there is more danger from the infecting agent thrown into the air by the act of coughing than from dust derived from the same material. He referred to the extreme danger attaching to inmates of the same houses where cases of consumption in advanced stages are resident.

WHAT CONSTITUTES AN EPIDEMIC?

DR. BENJAMIN LEE, of Philadelphia, read a paper on this subject, in which he claims that if a dozen cases occurred in rapid succession from one case, then an epidemic exists. He referred to the indisposition of communities to admit the existence of epidemics owing to the injury to commerce which was likely to result. His contention was that the actual number of cases of a contagious disease in proportion to the population as a criterion for the declaration of an epidemic had nothing to do with the case. He thought that rapidity of spread should be solely considered. "The Board of Health, which, having knowledge of such conditions, purposely conceals it, or, still worse, denies it, is guilty of a crime of hideous proportions, none the less so because it is acting in obedience to the behests of the business portion of the community or from a mistaken sense of local patriotism."

MRS. ELLEN H. RICHARDS, of Boston, contributed a paper on

THE URGENT NEED OF SANITARY EDUCATION IN THE PUBLIC SCHOOLS.

She said the average American citizen had not accepted the teaching of sanitary science as a part of his creed. The remedy for this ignorance was to be found in securing the correct teaching of the elements of public hygiene in the public schools of the country. The diseases among American soldiers in the late war were caused, in her opinion, by culpable ignorance among the officers. Clean school-houses, clean streets, and special education cost money, which municipal officials claim it is impossible to get, but the fact should be brought home to the community that the cost of needless sickness and death among our soldiers would have paid for the cleaning of every school-house in the land, and the amount of the pension money would be more than sufficient to keep them clean. She advocated the appointment of a Committee to prepare a primer which should contain the essential principles of preventive medicine, and which could be as universally taught as is first aid to the injured. Good cooking was also a factor in preventing a disease.

At the evening session of the first day addresses of welcome were delivered by the HON. SIDNEY FISHER, M.P., SIR JAMES GRANT, the Mayor of Ottawa, and ALDERMAN W. G. BLACK.

The response to these various addresses was made by the President of the Association, DR. LINDSLEY.

DR. BENJAMIN LEE then took the chair and PRESIDENT LINDSLEY delivered his

ANNUAL ADDRESS.

He said the primary and ultimate purpose of the Association was the protection and preservation of the public health. Sanitary science was based on the correct interpretation of facts. The verification of a single fact often involved a long investigation. For example, there was much significance in the fact that civilized man lived longer than the savage, that this had arrested the attention of close observers, and prompted inquiry into the special factors in civilization which had caused this result. Civilization was a power exerting an influence upon human life in many directions. The conditions of modern civilization contributed powerfully toward lengthening life, if the average of a large community was the basis of measurement. Social practices of so-called civilization might prematurely cut the thread of life and so diminish its average duration.

Dr. Lindsley reminded his hearers of the progress made in medical science during the past few years. Not many of us have had personal observation of the plague, of leprosy, of scurvy, of typhus fever, or of yellow fever. Civilization was an evolution. It was progressive, developing new features with every advance. Health organizations were themselves a development of civilization. He said that England led all other countries in public sanitation. In Canada, Mexico and in many States in America they were illustrating — as yet imperfectly — an ideal system. He dwelt at length on the system of looking after the health of the public, which, in his opinion, was an excellent one, and said the public intelligence should appreciate the value of it. He advocated a public chemical and bacteriological laboratory, and said a Central Board of Health was not fully equipped without one.

The future of the administration of public hygiene in America is encouraging. The progress which it has made in the last two decades indicates a vigorous and healthy growth. But it is still in its early youth. Its motto from now on must be: "Organization and efficient co-operation."

This Association will continue to be as it has been, an ever-increasing fruitful fountain of information, and as an active agent in developing the power of public opinion in aid of the cause, an influence for good which cannot be estimated.

Provincial, State and local boards of health, in organic form, are coming to be recognized everywhere as necessary forces for the safety and well-being of all civilized communities. The movement has gained an impetus which cannot be resisted. It must go on, nurtured, sustained and guided in its progress by the

skill, judicious enterprise and intelligent energy (so characteristic of the people of North America), until, in practical utility and successful results, it will have no superior among the nations of the earth.

DR. HENRY B. HORLBECK, of Charleston, S. C., Chairman, presented the

REPORT OF COMMITTEE ON THE ETIOLOGY OF YELLOW FEVER.

Reference was made to the labors and experiments and discoveries of Sanarelli. A number of enlightened colleagues of this distinguished laborer have been engaged in verifying and extending his researches as to the cause of this disease. Sanarelli claims that he has found the bacillus icteroides in 58 per cent. of the cases examined, and believes that the reason of his non-success in finding it always is due to incidental causes. The author gave a description of the bacillus of yellow fever, and then referred to the work of other investigators. Drs. P. E. and John I. Achinard, of New Orleans, had studied the subject in relation to diagnosis by the Widal method of the bacillus icteroides. In 50 cases of yellow fever, agglutination with cessation of motion was obtained in over 40 per cent. of cases, the reaction being as characteristic as in typhoid fever cases.

The work of these gentlemen demonstrates: (1) the practical value of serum diagnosis; (2) it may be utilized as early as the second day; (3) that a dilution of $\frac{1}{10}$ with the time-limit of one hour is to be preferred for accuracy in diagnosis; (4) the dried blood method of Dr. Johnston is perfectly satisfactory; (5) the serum diagnosis of yellow fever should be instituted in all countries wherein the disease may exist endemically, or which may be occasionally visited by epidemics; (6) it is especially valuable at the beginning of epidemics in the diagnosis of early and doubtful cases. The universal consensus of opinion among the enlightened scientific world was that yellow fever was due to a specific organism and that while the bacillus icteroides might not be the inevitable cause of the disease, it was still of sufficient importance to warrant its closer study.

As a supplement to the report, DR. DOTY, of New York, states that his researches indicate that the antitoxin serum possesses rather weak preventive power. Experiments made to determine its curative power had yielded negative results. His investigations on the subject of vaccine or a prophylactic fluid would indicate that the bacteria isolated from cases of yellow fever have preventive powers when prepared and inoculated according to the methods of Koch and Haffkine.

DR. EDUARDO LICÉAGA, of Mexico, read a sixth report on the

ETIOLOGY OF YELLOW FEVER.

This disease was defined as a febrile affection of a contagious character which prevails endemically in certain parts of the Republic of Mexico, and sometimes assumes an epidemic form. The only centre of the disease that exists on the coast of the Mexican Republic was found in the canton of Vera Cruz. In no other part of the Gulf coast does yellow fever ever make its appearance spontaneously. The disease has been transmitted through the bagging that carried corn, sugar and coffee. It has also been transported by the clothing of persons who have been attacked, and also by the skins which are exported from the places in which the endemic exists. Another material which served to propagate yellow fever was the ballast which is shipped by the vessels in Vera Cruz after having landed their cargo. The propagation of the disease through the medium of water was not well established, although it was a probable cause.

The general conditions that favor the transmission of yellow fever are humidity, heat, want of light and of ventilation. Sanarelli believes that mould affords protection to the yellow-fever germ, and that once it finds a lodging in the mould it is preserved in the houses, ships and other objects that can serve as a medium of transmission. The same author believes that mosquitos can serve the same purpose.

REPORT OF THE COMMITTEE ON THE CAUSE AND PREVENTION OF INFANT MORTALITY.

This was read by the Chairman, DR. ERNEST WENDE, of Buffalo, N. Y. He said that the utmost care must be exercised so as not to confuse diphtheria with some trivial disease, it being perfectly obvious from its dangerous character that it was essential to make a diagnosis as early as possible. Reports from the smaller communities bore ostensible evidence of absence of vigilance for the wholesomeness of water and the milk-supply, this being a most important feature of public sanitation, requiring a fearless surveillance and systematic investigation in relation to all infectious diseases. He said that several scarlet fever and diphtheria epidemics had been averted in Buffalo by promptly tracing the source of infection to a particular milk route. Most satifaction was found in the general condemnation of the long-tube, death-dealing nursing bottle. Buffalo, through its City Health Department, had interdicted the use of the long rubber tube, and as a consequence of which a suit is now pending in the courts to test the validity of such action, the suit being prompted by commercial interests. In preparing for this litigation, to be able to demonstrate the danger of such nursing bottles and the justification for suppressing them, the Department of Health had resorted to a series of microscopical, bacteriological and chemical investigations, which revealed innumerable bacteria of varied morphology.

(*To be continued.*)

THE NEW YORK STATE MEDICAL ASSOCIATION.

FIFTEENTH ANNUAL MEETING AT THE MOTT MEMORIAL HALL, NEW YORK CITY, OCTOBER 18-20, 1898.

(Concluded from No. 22, p. 550.)

DR. LEROY J. BROOKS, of Norwich, Chenango County, read a paper on

THE DIAGNOSIS AND INDICATIONS FOR TREATMENT OF CHRONIC INTESTINAL OBSTRUCTION.

The trend of opinion on the treatment of this class of cases, he said, had been in the direction of surgical interference, but in reality little advance had been made within the last fifty years. In many respects it was difficult to separate acute and chronic obstruction. As to the diagnosis in any supposed case, three questions presented themselves: (1) Has the patient chronic intestinal obstruction? (2) If so, what is its character? (3) What is its location? The symptoms we should

expect to see in a case of chronic obstruction would be, constipation, abdominal pain, nausea, vomiting, and tympanites, with perhaps marasmus and cachexia and such concomitant signs as hiccough or jaundice.

As to the character of the obstruction, the trouble might be caused by simple and malignant growths, by inflammatory bands or diverticula, by gall-stones or other foreign bodies, or by impacted feces. Age was an element of some importance, and it was rare in infancy. Gall-stones, while not infrequent between thirty and forty, were most common in those over forty, and malignant disease usually occurred between forty and seventy-five. Pain was more or less indicative of the degree of obstruction, and nausea and vomiting were present in all cases of stricture. Cachexia and marasmus were seen as the result of auto-infection.

In regard to the location of the obstruction, the nearer it was to the stomach the more severe were the symptoms of pain and vomiting. As a rule, the pain from obstructions in the small intestine centred in the navel. Tympanites was absent if the seat of the obstruction was high up, and marked if it was situated low. Post-operative obstructions were usually met with at the junction of the large and small intestine. In 75 per cent. of cases constipation was present, and in 25 per cent. constipation alternated with diarrhea. Adynamic obstruction (due to paresis) presented many difficulties in the matter of diagnosis. Exploratory laparotomy was not infrequently called for in chronic obstruction in order that a satisfactory knowledge of the condition of the parts might be obtained. We could often make a diagnosis between the large and small intestine, and yet remain in doubt as to the character of the obstruction. There could be no question that too much conservatism had sacrificed many lives.

As to the indications for treatment, surgical interference was generally demanded except in cases of fecal impaction, the operative procedure varying according to the circumstances of the case in question. A considerable proportion of the cases of chronic obstruction was due to peritoneal inflammation resulting from abdominal operations, and he thought that surgeons should observe greater care in opening the peritoneum with a view to the prevention of such an unfortunate sequela.

Dr. John F. Erdmann, of New York County, read a paper on

Intestinal Obstruction due to Intussusception and Volvulus.

Intussusception, he said, might be either ileo-cecal, ileo-colic, or enteric (involving the small intestine only). The last-named variety was the most common. As to its anatomical etiology, he had not observed that a long mesentery was a factor in its production, but believed that the contraction of the circular fibres of the intestine was an important element therein. The opinion expressed by many authors that children of robust physique were less liable to the accident than feeble ones was not borne out by his experience, as most of his patients had been well nourished. It would seem that all causes producing diarrhea and vomiting tended to cause irregular peristalsis. The signs of this form of obstruction which Dr. Erdmann enumerated were those personally observed by him, and not derived from the books. Among them were pain and distention of the abdomen. Vomiting was present in only three cases out of seven. Constipation was by no means constant. Frequently there was an evacuation of stools from below the seat of obstruction. Later the patient passed blood and mucus, or mucus tinged with blood. Tenesmus was usually present, and great restlessness in the case of children. If, after the injections with water, the moaning and restlessness ceased within twenty-four hours, the intussusception could be said to have been reduced. Tumor was usually absent in his cases.

In speaking of the treatment he referred first to mechanical means, and said that, to be successful, enemata should be used in the first twenty-four hours. In order that they might be applied effectively the patient should be placed in an inclined position or suspended by the feet. The head of water should not be elevated more than four feet. In connection with the injections, massage of the abdomen should be practised. Although the danger from the use of water was of the same nature, it was not so great as that from the use of air for dilatation. Should the enemata be followed by no relief, operation should be promptly resorted to, just as in strangulated hernia when taxis failed to reduce.

He could not agree with those who claimed that children bear laparotomy poorly. He had operated successfully on one child seventeen weeks old, on another two years old, and on a third three years old. After exposing the tumor reduction should be made, not by traction upon the bowel but by gentle pressure from behind. If the operation was not done easily, enterostomy would probably be required. He described the procedures called for, referring particularly to Barker's and Paul's operations, and stated that typical end-to-end anastomosis was justifiable only when the patient's condition was unusually good. In conclusion, Dr Erdmann gave a *résumé* of seven cases in his own practice, four of which had been met with during the past year. Four of the patients, adults, died, being admitted to hospital in a practically moribund condition, and three, children, recovered after operation.

Volvulus was characterized by the sudden onset of severe pain. Occasionally a tumor could be felt, percussion over which would yield a note, varying from dull to highly tympanitic. Self-cure might possibly take place. If it did not, progressive peritonitis, at first local and then general, would occur, with concurrent gangrene of the bowel. He had seen two cases, both of which were beyond all hope when admitted to hospital.

Dr. Frederick Holme Wiggin, of New York, read a paper entitled

The Technics of the Operative Treatment of Intestinal Obstruction.

He said that the various conditions for which operations are usually demanded are: (1) strangulation of the gut by bands, extensive adhesions or apertures; (2) volvulus; (3) intussusception; (4) obstructions due to neoplasm; (5) compression by tumors external to the gut; (6) obstruction from foreign bodies, such as gall-stones and enteroliths; and (7) obstruction caused by fecal masses.

Where the case is one of acute intestinal obstruction there is but little time for preparation. The loose pieces of furniture should be removed from the room selected for the operation, and sheets wet with carbolic-

acid solution, 1 to 20, or bichloride solution, 1 to 100, should be placed over the carpet. In this preparation of the room it is important that no dust be raised. The instruments are boiled for ten minutes in a two-per-cent. solution of carbonate of soda and are then placed in trays containing sterilized water. The towels may be sterilized in a special sterilizer or by boiling. A large quantity of saline solution (one teaspoonful of common salt to the quart of water) should be on hand, and a wash-boiler, after thorough cleansing, should be filled with water which has been sterilized by boiling for an hour. This water is then rapidly cooled in pitchers surrounded by ice. Where there is great haste, it is admissible to take the water from the hot-water faucet. If there has been much vomiting, or if there is considerable abdominal distention, it will be well to follow Kussmaul's suggestion, to wash out the stomach with saline or boric-acid solution. If, in addition, the patient is much prostrated, and does not respond well to the ordinary cardiac stimulants, from one to three pints of saline solution should be injected into the veins.

The patient having been anesthetized, the skin over the field of operation is treated successively with the following: (1) green soap; (2) hydrogen dioxide; (3) lathered and shaved; (4) water; (5) equal parts of alcohol and ether; (6) 1 to 500 bichloride solution in alcohol; and (7) sterile water or saline solution. The bladder should then be emptied by catheter. When the site of obstruction cannot be definitely located, an incision, four inches long, should be made through the right rectus muscle, between the umbilicus and the pubes. If distended coils of intestine obscure the view, they should be aspirated or incised, and the wounds so made closed by suture, and the parts disinfected with hydrogen dioxide. The first effort of the operator should be to find the cecum. If it is greatly distended there is good reason to believe that the obstruction is in the colon, but if there is little or no distention, it is probable that the stoppage is in the small intestine. The rectum should, of course, be explored prior to the abdominal section. Where the obstruction is supposed to be in the colon, the hand should be passed over the entire length of the large bowel, or until the obstruction is found. Where the obstruction is suspected to be in the small intestine, the operator should look along the brim of the pelvis and in the region of the cecum for the collapsed portion of bowel, and follow this down to the obstruction. The various hernial orifices should also be examined, remembering that sometimes two forms of obstruction may co-exist.

If the intestinal obstruction is caused by bands, these should be ligated on both sides near their attachment, and removed. If a diverticulum or an adherent appendix is the cause of the trouble, these portions of the bowel should be removed in the ordinary manner, and the opening in the gut closed with Lembert sutures. According to the writer's experience, when volvulus occurs in the small intestine it is not only safe, but desirable, to draw the intestine out of the abdomen, taking care to keep it hot and moist by wrapping it in gauze or soft towels wrung out of hot saline solution. Where an intussusception is the cause of the obstruction, the tumor should be encircled below its apex by the finger and thumb, and the sheath held a few inches lower down, while the apex of the tumor is pushed upward. Traction from above the tumor should not be employed. If the intussusception is irreducible, the following method, described by Maunsell, is recommended: A slit is made in the intussuscipiens and gentle traction is exerted on the intussusceptum until its neck appears outside the opening in the intussuscipiens. The base is then transfixed with two straight needles, armed with horsehair, and the intussusception is amputated one-fourth of an inch above the needle. The sutures are now passed through the invaginated bowel, caught up in the interior of the bowel, divided and tied. The invagination is then reduced, and the slit closed. Thanks to modern surgery, most neoplasms causing intestinal obstruction can be removed, and naturally such a course is preferable to colotomy. Where it is inadvisable to resect the portion of bowel containing the growth, an incision, four inches long, should be made over this portion, in the direction of the fibres of the external oblique, and the bowel drawn upward until its mesenteric attachment is on a level with the external incision. A slit is then made in the mesentery and a glass rod is passed through, and iodoform gauze wound around the ends of the rod. The rod is left in position until adhesions have formed, when the gut is opened.

When the intestinal obstruction results from the pressure of a neoplasm external to the gut, the new growth should be extirpated, but if this is not possible a fecal fistula must be established above the point of obstruction. Gall-stones or enteroliths causing obstruction should be pushed a little upward or downward, and then removed by an incision. The object of this is to avoid making the incision through the portion of the gut which is likely to have been damaged by pressure. Fecal accumulations causing obstruction are best removed by a high enema of saline solution, injected at a temperature of 100° F. by means of a fountain syringe raised three feet above the patient. The flow should be intermitted from time to time as the patient complains of distention or colic. The enema should be retained as long as possible, for the object in giving it is to secure the softening of the mass rather than to stimulate peristalsis. The procedure may be repeated several times, and its action assisted by the administration of small doses of calomel and soda.

When the gut is found to be gangrenous, in a case of intestinal obstruction, an end-to-end anastomosis should be effected, and for this purpose Dr. Wiggin prefers his modification of Maunsell's method. The modification consists in doing away with the invagination and the slit. The portion of intestine to be extirpated is emptied of its contents by pressure. The portion to be removed is then isolated by clamps on either side, and a V-shaped incision is made, having its apex in the mesentery. The mesenteric vessels are ligated before being cut, and the wound in the mesentery is sutured. After washing the divided ends of the bowel with hydrogen dioxide, they are united by two sutures passing through all the intestinal coats, the first suture being at the inferior or mesenteric border, and the second directly opposite at the highest point. The third and fourth sutures are passed on either side halfway between the first two. The other sutures are passed in the same way, the needle going from within the gut and piercing all the coats, then back through the peritoneal, muscular and mucous coats to the interior of the other segment of bowel. The ends are then tied in the bowel. This process is continued until all the sutures but one or two are passed. For

the latter, Lembert sutures are substituted. If the sutures have been properly inserted and tied, the peritoneum will now be turned in and the stitches hidden.

The operation having been completed, and the dressings applied, the patient is placed between the folds of a warm blanket and only a little warm water allowed by mouth for the first twelve or eighteen hours. Then a few drachm doses of liquid peptonoids are given at intervals of twenty minutes, and, if well borne, peptonized milk is added. The tendency is to give too small quantities of food at too frequent intervals. The bowels are moved on the third or fourth day by small doses of calomel and soda.

In closing, Dr. Wiggin laid great emphasis on the fact that the prognosis in this class of cases depends more upon the promptness with which surgical treatment is instituted than upon any other factor.

Dr. H. O. Marcy, of Boston, who was present as a guest, said that the *résumé* on intestinal obstruction that had now been presented was of the utmost value, and that, while the various papers necessarily overlapped each other to a certain extent, the collection as a whole, when published in the transactions of the Association, would prove a very important addition to the reference library. As he looked back over the years that were gone, he could not but congratulate the profession on the extraordinary advance which had been made in this field of medicine. Still, it was one which was not yet sufficiently understood, and as we looked into the future he felt certain in some respects our views would be further modified. The importance of operating early had been emphasized by all the writers. Certainly the general practitioner waiting, Micawber-like, for something to turn up, was not an object of admiration. If he felt himself incompetent to deal with a case of the kind in question he would lose nothing in either his self-respect or the esteem of his *clientèle* by calling in consultation one more skilled than himself in this particular field. By this division of our responsibility only good could result.

As to the matter of technique he was sure that we had still a great deal to learn. The results had been good, but none of us were as yet quite satisfied. In speaking of enterectomy Dr. Marcy explained his own method of operating and the use of the double continuous suture. He said that it was of the utmost importance to secure a smooth peritoneal surface, and that he should like to emphasize the thorough reconstruction of the peritoneal plain. There were almost always some little uneven points left after operating, and no matter how small or how multiple these were, it was the surgeon's duty to carefully attend to them all. If such sources of irritation were allowed to remain they were liable to give rise to adhesions and to possible further obstruction of the bowels. In closing the abdomen he had long ago adopted the buried subcuticular suture, and he had now used it in some 1,800 laparotomies. There was nothing to cut, and the remaining cicatrix was reduced to the minimum.

The Philadelphia Polyclinic, now published by the Philadelphia Polyclinic and College for Graduates in Medicine, will be discontinued on January 1, 1899. Unexpired subscriptions will be completed by the *Philadelphia Medical Journal*.

Recent Literature.

A Manual of Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D., Clinical Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. 911 pages and 386 illustrations. Philadelphia: W. B. Saunders. 1898.

This second edition, like the first, which was published in 1894, is an attractive, well-arranged book. The first edition was popular because it was free from data and hypothesis, which would cause doubt and uncertainty in the mind of the reader as to the correctness or efficiency of the methods, theories or treatment found on its pages. It was a delightfully positive type of book. This was due to the omission of everything obsolete, unessential or doubtful, and retaining only what was in common use. In the new edition no attempt has been made to alter its character or change its purpose, but it has practically been rewritten. Many new articles appear, and most of the former ones have been enlarged, condensed or otherwise altered. Among the many changes one notes the increased size of the volume, its improved appearance and more durable binding. Also the changes in the sections describing the surgery of the liver, gall-bladder, spleen, pancreas, the female breast, wounds from modern projectiles, electrical injuries and skiagraphy. Among the new operations one finds resection of the Gasserian ganglion, gastrostomy, thoracoplasty, enterorraphy, resection of the shoulder, amputation of the hip, and others.

The book is a manual of surgery. One will not find, as a rule, much detail, but if the reader remembers that the subject of surgery is not exhausted when he has read this volume (as its positive character might lead him to believe), and supplements it by reference to more extended or elaborate articles when studying a given subject, he will find it of value to him. The more experienced student and practitioner of surgery in looking over its pages will find many things concerning which his opinion will differ from the writer's. To him it will be a convenient summary, though perhaps at times a somewhat incomplete one, and at all times an interesting review of his especial work.

Laboratory Work in Physiological Chemistry. By Frederick G. Novy, Sc.D., M.D., Junior Professor of Hygiene and Physiological Chemistry, University of Michigan. Second Edition. Ann Arbor: George Wahr. 1898.

This work is exclusively a laboratory manual. It contains a list and description of the laboratory experiments which must be performed by the student, in order to attain to a practical understanding of the subject-matter of physiological chemistry which he is to receive in his lectures.

Just enough general descriptive matter is inserted to enable the experimenter to understand the wherefore and the bearing of his experiments.

Few of the general works upon physiological chemistry contain explicit directions for laboratory exercises. And in those which do, the matter is so scattered and intermingled in the voluminous text, that is difficult to use it for a laboratory course.

There is therefore a need for books of this class. And this need the author has fulfilled, on the whole,

very satisfactorily, in this book. The fault of the book is, it seems to us, that in several instances the author has in his descriptive portions condensed too much; that is, he has failed to insert enough of the matter of physiological and pathological chemistry in connection with his sets of experiments to enable the student to understand the direct or indirect bearing of these experiments upon the study of medicine. The ordinary student is not performing the tests for albuminates, albumoses and peptones in order that he may become for all events a practical physiological chemist, but that he may the more completely understand the process of gastric or intestinal digestion. And he should so understand it.

The omissions of this nature in the book could have been remedied without greatly enlarging the text. They are, however, comparatively few in number.

An Epitome of Human Histology. By A. W. WEYSSE. 8vo, pp. 90. New York: Longmans, Green & Co. 1898.

We have to notice two additions to the already long list of text-books of histology for students' use. The first of these, "An Epitome of Human Histology," by Dr. Weysse, which is published by Longmans, Green & Co., is a work which is primarily designed for a general review of the subject, and is compiled essentially on a system of very elaborate and full lecture notes, so that a student who has once mastered the subject can go back to this work and find an extremely clear and succinct summary of the whole subject of histology. The work is very well printed, but it is without illustrations. The author's synopsis is both intelligent and accurate, so that his summary includes all the facts which are of real importance to the student. The special and somewhat unusual purpose for which the work is designed is well achieved, but the volume is not calculated to replace the text-book of the old type.

Students' Histology. By W. N. MILLER. Revised by H. U. WILLIAMS. Third Edition, 8vo, pp. 259. New York: Wm. Wood & Co. 1898.

Dr. Miller's Students' Histology, now revised by Dr. Herbert U. Williams, Professor of Pathology at the University of Buffalo, appears to us not to be a work to be recommended. Its treatment of the histological topics is on the whole inadequate, and the text contains a very large number of errors, while the illustrations, with few exceptions, are of a crude character and very coarsely executed. Neither the author nor the present editor appears to have kept up with the progress of science. Thus we find on page 49 that the nucleolus is put down as a typical constituent of the cell, although a nucleolus is a body which occurs only exceptionally and in few kinds of cells, and nucleoli are not bodies of a specific kind, but of many different kinds. The occurrence of chromatin as a typical constituent of the cell is not there mentioned. Again, on page 53 we find unstriated muscle classified with striated and cardiac muscles, although they are of different origin. The classification of epithelium is inaccurate, and there is no excuse for putting down endothelium as something distinct from epithelium. In Figure 66, representing a section of the epidermis, the outlines of the cells are drawn like overlapping tiles, and in no wise to correspond with the true shape of the cells; and the basal layer of cells is drawn in a purely imaginary manner, while many of the nuclei are pictured without reference to their actual proportionate size. Defective drawing seems to be the main characteristics of the original figures. In Figure 79, representing the mesenterial gland, there is little to recall the typical structure of such an organ. The inward prolongations of the capsule are grossly exaggerated, and the characteristic rounded form of the so-called nodules of the cortex is not suggested in any way. Equally unlike the actual structure is Figure 103, of the peptic gland, which is also full of inaccuracy. As an example of erroneous statement, we point out, that on page 163 it is stated that the prolongations of Glisson's capsule divide the entire structure of the liver into compartments, or lobules. This statement may be true of the pig, but it is untrue of man, yet no limitation to its application is suggested. Further, on page 165 the lobules are said to consist of two capillary plexuses, one containing blood and the other the bile. This corresponds to the old conception, but we now know that the plexus of gall capillaries is more apparent than real, and that the network described by earlier authors was the result of erroneous interpretation. In short, a work so replete with errors seems to us to call for no commendation.

A Manual of Bacteriology, Clinical and Applied. With an appendix on bacterial remedies. By RICHARD T. HEWLETT, M.D., etc., Assistant in the bacteriological department, British Institute of Preventive Medicine. Philadelphia: P. Blakiston, Son & Co. 1898.

This book is better than the average of publications on the same subject. It is chiefly concerned with those portions of the field of bacteriology which are of importance to clinical medicine and hygiene. It is well printed and bound. There are a number of reproductions of photo-micrographs of bacteria. Some are fairly good, others are bad. The book as a whole does not require any more comment than to say that its field is better covered by other books. It does not fill a long-felt want.

A Laboratory Text-book of Pathology, for the use of Students and Practitioners of Medicine. By HORACE J. WHITACRE, B.S., M.D., Demonstrator of Pathology in the Medical College of Ohio (University of Cincinnati). Philadelphia: P. Blakiston, Son & Co. 1897.

The aim of this small book, as stated in its preface, is "to furnish the student with a text-book that he can have beside his microscope in the laboratory. The author has made a laudable attempt at illustrations from numerous original photo-micrographs. A few of those are not as bad as are the great majority of them, which show a lamentable lack of skill in the art of photo-micrography and are practically useless.

The book may be of value to the personal pupils of the author, but we see no reason why it should be addressed to a wider circle of readers.

Atlas and Essentials of Pathological Anatomy. By DR. O. BOLLINGER, Obermedicinalrath and Professor. Two volumes. New York: William Wood & Co. 1898.

These volumes consist of a considerable number of colored plates with descriptive matter, and also of a short presentation of the subject of special pathological anatomy.

The plates, which are the most prominent feature of the volumes, are for the most part satisfactory. The work will probably be of use to students and beginners in pathological anatomy and may be recommended to such. It is not, however, to be regarded as an important publication.

In looking over the volumes, we have been surprised to note the absence of any mention of glomerulo-nephritis among the pathological conditions of the kidney, although it is very probable that one or two of the plates represent the well-known condition under other names.

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., Professor of Hygiene, University of Pennsylvania. Fourth edition. Enlarged and thoroughly revised. Philadelphia and New York: Lea Bros. & Co. 1897.

The appearance of a fourth edition of this book attests its deserved popularity. There has been some revision and some insertion of new matter, including illustrated descriptions of the bacilli of influenza and of bubonic plague, and of the micrococcus of gonorrhea. The book is the best introduction to the study of bacteriology which we know, and it can be thoroughly recommended to students and others interested in the subject. An examination, however, of the present edition reveals some faults which we think should be remedied.

The usefulness of the book as a laboratory manual would be greatly increased by the larger employment of different sizes of type, and by making certain subdivisions and paragraphs more striking to the eye. As the book is now printed, important points in methods or formulæ are often buried in a beautiful and homogeneously printed text, in which they may often be found only with some difficulty.

The illustrations in many instances are good, but the colored figures of bacteria, made for the most part from colored drawings, are nearly all unsatisfactory. Good photo-micrographs would have been much better, for it has been clearly shown that bacteria are admirably adapted for photo-micrography. The figures of influenza bacilli and of streptococci may be mentioned as especially defective and misleading.

The description of the histological lesions of tuberculosis and of glanders is far from clear and needs revision.

Finally, we miss among the bacteria described the bacillus of Friedländer, or the *bacillus mucosus capsulatus*, an organism which plays a fairly important rôle in human pathology. While it is true that the book is not designed to consider a large number of species of bacteria, we think that this bacillus might well be included, if such a comparatively unimportant bacterium as the micrococcus tetragenus is described.

The Physician's Visiting List (Lindsay and Blakiston's) for 1899. Forty-eighth year of its publication. Philadelphia: P. Blakiston, Son & Co. 1898.

This little visiting list, which is one of the best and most compactly arranged and contains a most judicious collection of reference tables, will continue in this as in former years to maintain its position and popularity.

The simple, but strong and useful cover, in which useless ornamentation is conspicuous by its absence, enables the book to be carried in the pocket a year without wearing out.

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THE MEDICAL DEPARTMENT OF THE ARMY AND THE SPANISH WAR.

THE report of the Surgeon-General of the United States Army to the Secretary of War on the work of the medical department during the Spanish War is naturally of great interest. As an official document it is admirably drawn and very successfully places the blame for the breakdown in the medical department on the exigencies of war and on those who were unfortunate enough to be in subordinate positions. This is in a way just, and yet it is extremely unsatisfactory.

The surgeon-general states that the number of medical officers (one hundred and ninety-two) allowed by law to the army is inadequate in time of peace. Naturally this seriously interfered with the medical department of the army successfully meeting a rush campaign. But this inadequacy of the medical corps is not a thing of very recent date. The present surgeon-general must have been aware of it for some years. In some quarters it was appreciated before he was placed at the head of the department. It is true that Congress, which hurried the country into the Spanish War and hurried our troops into Cuba, has, in this comparatively small but important matter, out of its extreme regard for the United States Treasury and the taxpayer, stood in the way of the enlargement and reorganization of the medical corps. A bill for its reorganization was introduced in the Senate on the twenty-eighth of last March, but to little purpose. Surgeon-General Sternberg was a promoter of this effort. But it is not unfair to say that a very forceful and very earnest official, thoroughly alive to the situation and the grave importance of the subject, would have found at an even earlier date some way to make himself heard, even had it been necessary to appeal to the profession at large throughout the country for its support and influence. A reference to the first and fourth paragraphs on page 4 of the last report of the Surgeon-General of the Navy is of interest in this connection.

All the way through the report can be seen the work of a rush service; a lack of intelligent preparation prior to the declaration of war. In fact, it has been jocosely said, that "we had a most excellent medical department of the United States Army, and that it was conducted beautifully until war broke out." As an example of the lack of preparation and forethought and proper appreciation of the duties of the surgeon-general is the quotation: "A field-supply table was prepared and approved by the Secretary of War on May 9, 1898." It was intended to provide for the needs of commands in *active service* where only a limited supply of articles could be carried, owing to the necessity of restricting transportation, and it should have been carefully prepared months before war was declared. This suggests that the principle, "In time of peace prepare for war," had never been seriously considered in our surgeon-general's office.

It is well known that the present Surgeon-General of the United States has done a great deal to improve the position of medical officers of the United States Army. Exceptional opportunities have been afforded them in the centres of medical instruction in the country for improvement in their scientific work. No one more thoroughly appreciates the necessity for the training of medical men in laboratory methods than we do, but the primary object of a medical department of an army is to keep troops well during a campaign, in order that successful military operations can be carried out. The treatment of casualties, the curing of disease, are secondary to military exigencies. An army is composed of well men and it is the duty of the medical department to keep them well.

There can be little doubt but that General Sternberg strained every nerve and made the most extraordinary efforts to meet the exigency, but it was impossible to do so. When a man who had reached the surgeon-generalship through political methods, whose life training had been that of a laboratory man, whose life had been practically devoted to research work in bacteriology — and good work it has been — is brought suddenly face to face with the problem of the nation in war, it is not surprising that he should have found it impossible to meet the condition.

Emergencies are rarely successfully met, unless they have been carefully thought out beforehand, and this, it seems to us, is one of the reasons why the medical department broke down. In fact, in thinking of Surgeon-General Sternberg, it is remarkable that he did as well. At once a railroad ambulance-train was equipped, hospital ships were fitted out, circulars as to the sanitation of troops were issued, and everything that a man could have done in an emergency, who apparently had not considered that an emergency would arise, was done.

There is one point which is peculiarly interesting in this report, and that is a paragraph referring to medical and hospital supplies. This describes how the depots were equipped, where and when established, and at the end states: "The distance of San Francisco from the centre of the government was so considerable that the officer in charge of that depot was necessarily given large discretion in the purchase of supplies and the expenditure of funds." In any competent organization, officers in charge are always given large discretionary powers, and are held responsible for the exercise of those powers. We suspect that the fact that San Francisco, as a centre of distribution, was not dependent upon the detail orders from the central office is the reason why the Manila campaign, from a medical standpoint, did not break down.

However, the report, as a whole, is unsatisfactory, in that it fails to appreciate the real cause of the just and unjust criticism that has been showered upon the department. It has always been more or less the custom for commanding officers to throw upon their medical department a full share of blame in case of disaster. In fact, the management of a medical department is, perhaps, the most difficult of any of the departments of an army. In the quartermaster's and commissary's departments it can be foreseen, and is known, that a certain amount of clothing and food will be needed at a specified point and at a definite time, but in the medical department the very exigencies of a military service make the question of supplies an unknown quantity. Take, for example, the problem of rendering first aid to wounded. It cannot be foretold where in a line of battle the heaviest casualties will occur. The combatants are being pressed forward, or retired at points instantaneously decided upon, and a medical department is asked to meet these extraordinary emergencies, and to treat the casualties in an efficient manner. In fact, a moment's thought will bring home the truth that to successfully conduct a medical department requires a very high order of military ability. In an article in the *British Medical Journal* of November 12, 1898, page 1517, entitled "The Seamy Side of War," it is stated that at the battle of Atbara, where three thousand men were engaged, there was a force of one principal medical officer, six surgeons and about sixteen orderlies. Protests were made repeatedly, but were unheeded. The Sirdar, owing to a desire to save expense and to economize transport, had declined to forward a sufficient number of medical orderlies. At this battle there were one hundred and twenty casualties. The story is one so often repeated in war — the arrival of the medical staff exhausted, doing their best, though shorthanded, until surgeons and orderlies were absolutely overworked.

Again, on the second advance to Omdurman the home government had insisted, and rightly insisted, regardless of all opposition, that such defects as had occurred at Atbara should not occur again. And this time everything was prepared. There were three completely equipped hospital barges, with medical officers and orderlies and every comfort on board; but these three barges with all their staff had, for some inexplicable reason, been ordered across the

river. There was no steamer available to bring them back. All preparation and forethought were thus completely thwarted.

In short, it may be said that war demands preparation and forethought and administration; that it requires extraordinary skill in the management of its quartermaster's, commissary's and medical departments. This extraordinary skill is from the very nature of the service in time of peace not available. The men naturally best fitted to do this work will not remain in the army for twenty years in peace. They are active and not willing to wait for an emergency to arise. They make their emergencies. For this reason it seems to us that it will always be necessary in time of war to call in experts for service and it would be preferable to have these experts selected and given some honorary official title or recognition before the exigency arises, in order that they may with due care and deliberation devote thought to prospective problems that may arise.

A commission of a dozen or more men, leaders in the profession, experts in special branches — in hygiene, sanitation, medicine, surgery, pathology and bacteriology — might be selected throughout the country and made an advisory body.

We believe that it is necessary to reorganize the surgeon-general's office in conjunction with essentially all the departments of the United States Army. They should be interdependent and not independent and should be controlled by a general of the army. The Surgeon-General of the United States should be a man who is known to possess exceptional qualities as an administrator. It is a position requiring executive ability and not especial scientific attainments. The office itself should be organized under heads who should be held responsible for the work done under them, but should not be interfered with in that work. In fact, it should not be necessary for them to ask the approval of the surgeon-general for their minor acts, but they should be held to a strict responsibility for the general conduct of their sub-departments.

We have heard it said by a competent judge who saw something of the medical service during the war, that it seemed to him the regular medical officers were hampered because tied up with red tape which they did not know how to cut, and the volunteer and contract surgeons, however competent, were inefficient because they did not know how to tie this same red tape.

While we have expressed ourselves frankly and strongly as to the defects in the administration and organization of the surgeon-general's office, yet in simple justice we believe that it should be said that the medical department of the United States Army did some remarkably effective work during the Spanish War. In making this statement, however, we have in mind the unreadiness of the surgeon-general's office for war. Above all, we have in mind the fact that the Congress of the United States passed a bill organizing a volunteer army of three hundred thousand men without providing any medical staff for the manning of division or base hospitals except one principal medical officer for each corps, division and brigade, and without making provision for the enlistment of men for the specific duty of service for the hospital corps — a most vital defect. This extraordinary omission is, we think, one of the most serious defects in the preparation for the war, and if the responsibility for it could be placed on the proper shoulders those shoulders would bear a heavy burden. We have in mind the wicked reduction of the age limit from twenty to eighteen years; the proximity of camps to large centres of population; the unreasonableness of Congress in precipitating war at the season of the year that it did. Having in mind these and other things, it is no more than justice to say that the efforts of the surgeon-general and his medical officers to meet the terrors of war were extraordinary and challenge admiration. They failed, and from their failure should be learned the lesson of reorganization.

HOSPITAL ACCOMMODATION FOR STUDENTS OF HARVARD COLLEGE.

The need of hospital accommodation for students of Harvard College, in a building under control of the corporation, has been met by the gift of Mr. James Stillman, of New York, of the sum of $50,000 for this purpose, and, in addition, the further contribution of the sum of $2,500 a year, for four years, toward the running expenses of the projected infirmary. This benefaction, which is immediately applicable, and is sufficient in amount to cover the cost of land and of a suitable building, is made without other conditions than that the gift shall be devoted to the carrying out of the purpose intended, and that the building shall bear the name of the donor.

The land, already secured, is situated between the land of the Cambridge Hospital and that of the new Home for Aged People, and has a frontage of 100 feet on Mt. Auburn Street, a depth of 280 feet, and abuts in the rear on the new Metropolitan Parkway. This location is especially advantageous, because of its proximity to the Cambridge Hospital and the Home for Aged People, both of which institutions have open grounds, its southern exposure and its abutment on the Parkway, which will secure it from the intrusion of other buildings in the rear.

The plans under consideration provide a brick building of firepoof interior construction, with single rooms and small wards for patients, and, in addition to the usual provisions of a hospital, a sun-room and reading-room for convalescents, guest-rooms for the parents of sick students, and a diet kitchen, from which suitably prepared food may be sent to out-patients in the college buildings.

The need of such hospital accommodation for students at Cambridge has been long felt and recognized. It is largely due to the persistent activity of Dr.

Clarence J. Blake that the want has been brought to the personal attention of those who have shown themselves at once able and willing to contribute to its relief.

MEDICAL NOTES.

A JOURNAL CONSOLIDATION. — The *Canadian Medical Review* and the *Canadian Practitioner* have been consolidated, the new periodical being called the *Canadian Practitioner and Medical Review*.

MEDICAL MAYORS. — It is reported among the mayors elected in the principal cities and towns of England and Wales the second Wednesday of November there were no less than nineteen medical men.

TIGHT WAISTS. — We look upon it as a barbarous custom for Chinese women to constrict their feet. Li Hung Chang thinks it more barbarous for Americans to constrict their necks and waists and the old man is right, for there are no vital organs in the feet. — *Annals of Hygiene.*

A MONUMENT TO DR. MÜLLER. — It is proposed to erect a monument to Dr. Müller, whose devotion in the case of Barisch, the laboratory attendant whose carelessness started the recent little epidemic in Vienna, resulted fatally to himself. Dr. Müller was an earnest student of the disease, having carried on extensive studies in India, and had attained eminence as an authority.

EXPLOSION ON THE "BAY STATE." — An explosion which took place in the ice-plant of the hospital ship *Bay State*, recently sold by the Massachusetts Volunteer Aid Association to the United States Government, while lying in New York Harbor, on December 6th, resulted in the death of one man and the injury of fifteen, who were employed in cleaning out the ammonia coils of the plant. The injured men were treated on the hospital ship *Relief*, which was lying near by.

SUCCESSFUL LAPAROTOMY FOR GUN-SHOT WOUND OF THE ABDOMEN. — Batchelor reports a case in which a laparotomy for gun-shot wound of the abdomen, involving suture of nine perforations of the intestine, three of the bladder, and one of the rectum, was successfully performed by him. He was fortunate in being able to operate early, as the patient, a boy of nine, was brought to the Charity Hospital, New Orleans, where he was house-surgeon, within thirty-five minutes after the wound was received.

THREE ABDOMINAL SECTIONS WITHIN A FORTNIGHT. — The *Medical Press* reports the case of a patient upon whom Mr. H. Allingham performed a laparotomy for salpingitis, who had to have the abdomen reopened four days after the operation, and again one week later. Both times the operation was demanded on account of kinking of the intestine, due to adhesion to an omental stump. On the last occasion, Mr. Allingham fixed the stump in the upper angle of the wound, and the patient recovered without incident.

A BULLET IN THE HEART FOR THIRTY-SEVEN YEARS. — Dr. O. B. Beer reports in the Cincinnati *Lancet-Clinic*, the case of a man who was shot by bushwhackers during the Civil War, the bullet entering the left chest and passing through the left lung and into the left ventricle of the heart. Although the man was left in the field as fatally wounded, he finally recovered. His repeated asseverations that the bullet was in his heart were confirmed by an autopsy performed at his request by Drs. Beer and G. O. Brown. He died of cancer.

PREMATURE CORONER'S VERDICT. — Rev. J. H. St. Clair, of Decatur, Ala., was reported dead on November 24th, and the coroner, having been informed that he had taken 15 grains of morphine, rendered a verdict of suicide by morphine poisoning. On the following day, the Rev. St. Clair, having recovered from his overdose of morphine, to which drug he is said to have been addicted, came to life, and is now reported to be in the enjoyment of good health, despite the fact of having been officially declared dead. — *Philadelphia Medical Journal.*

NOTHING NEW UNDER THE SUN. — And now Mr. Frederick Treves, of London, refers in the *British Medical Journal* to the fact that he himself invented "Halsted's rubber bags" for intestinal suture, and published the description of them sixteen years ago in the *Medico-Chirurgical Transactions*. Finding that they were useless, he soon gave them up. The *Philadelphia Medical Journal*, in which Halsted's article was published, corrects Mr. Treves by stating that his description was published six years instead of sixteen years ago. It will be remembered that Dr. A. J. Downes has already claimed priority over Halsted in the invention of the much-discussed cylinders.

THE MAD-DOG CRAZE. — The Irish Registrar-General reports that, within the past quarter, one case of human rabies occurred in the Castleblayney Union. If we believed that it was really hydrophobia (which, in the absence of further information, we do not), we should conclude that, in a population of nearly five million of persons, each individual runs the one and a quarter millionth of a chance of acquiring hydrophobia in Ireland in the course of a year. The expectation of death from an ordinary cold in the head is, probably, at least twenty times that of death from hydrophobia. And yet we have a special Act of Parliament and a sheaf of Orders in Council to protect us from rabies. What a world we live in! — *Medical Press and Circular.*

AN ELECTRIC MOTOR FOR BOWELS. — Dr. Herschell publishes in a recent number of the *Clinical Review* an article on constipation, in which he advocates, among other things, treatment by vibration. He figures his vibrator, which resembles a policeman's club,

and an electric motor to run it, which looks powerful enough to "move" the bowels or anything else. Bowels which did not move when their owner saw a physician about to employ such violent measures must be impassive indeed. From the appearance of the instrument, the bowels must feel as if they were being coerced by a pile driver — a circumstance which the author of the treatment has undoubtedly foreseen would render his machine especially valuable in those cases which are complicated with hemorrhoids. Jalap and elaterin can now hide their diminished heads before this new personification of force in therapeutics, and the compound cathartic pill and "cannon ball" be piled up in little pyramids in the therapeutic arsenal, among the gear we used to use before the Spanish War had shown the value of rifled cannon and jacketed projectile. It is becoming a question, however, whether in the war against constipation, as well as against the armed enemies of the Anglo-Saxon race, the power of the instruments employed will not before long become so great as to make war impossible, owing to the frightful power of the instruments employed, and the impossibility of resisting their action, even temporarily, which would certainly be a disadvantage in the case of a cathartic.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the two weeks ending at noon, December 7, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 42, scarlet fever 27, measles 103, typhoid fever 12.

Bequests to Hospitals. — In accordance with the provisions of the will of the late Capt. J. Putnam Bradlee, of Boston, his sister, Miss Helen C. Bradlee, lately deceased, was empowered to direct the trustees of her brother's estate to pay such amounts as she might specify to charitable institutions. According to Miss Bradlee's directions, the sum of $225,000 has recently been divided among seventeen institutions. The bequests to hospitals were as follows: To the Massachusetts General Hospital, $25,000; to the Massachusetts Homeopathic Hospital, $25,000; to the Massachusetts Charitable Eye and Ear Infirmary, $20,000; to the Free Hospital for Women, $20,000; to the New England Hospital for Women and Children, $20,000; to the Hospital Cottages for Children at Baldwinville, Mass., $10,000; to Sharon Sanitarium, $2,000.

By the will of the late Josiah B. Thomas, of Peabody, Mass., recently filed for probate, the sum of $50,000 was bequeathed to the town of Peabody for a hospital.

Appointments of Medical Examiners. — Governor Wolcott has appointed William L. Johnson, of Uxbridge, Medical Examiner of the Seventh Worcester District, vice G. E. Bullard resigned. Dr. James H. Knowles, of Gloucester, and Dr. Frederick S. Cate, of Provincetown, have been appointed Assistant Medical Examiners.

NEW YORK.

The New Hebrew Infant Asylum. — The new home of the Hebrew Infant Asylum, at 163d Street and Eagle Avenue, was formally dedicated on November 20th, and among those who made addresses were Commissioner of Charities Kelle and William Rhinelander Stewart, of the State Board of Charities. The main building is a four-story structure of colonial design, with accommodations for two hundred inmates, and on the grounds adjoining are an isolating pavilion and the hospital for contagious diseases.

Death of Dr. Atwood. — Dr. J. Freeman Atwood, a prominent physician of Brooklyn, died at his home in that borough on November 21st, from the after-effects of typhoid fever. He was born in New Jersey, in 1845, and was graduated from the College of Physicians and Surgeons, New York, with high honors, in 1870. He had been President of the Kings County Medical Society.

Bequests to Medical Charities. — By the will of David Leahy, who died recently in Brooklyn, more than one hundred thousand dollars is left to various charities. Among the bequests are the following: St. Mary's Hospital, Brooklyn, $10,000; St. Mary's Maternity, Brooklyn, $7,500; St. John's Guild, Manhattan, $5,000; Home for Consumptives, Brooklyn, $5,000; Brooklyn Bureau of Charities, $5,000.

Hospitals for Contagious Diseases. — The utility of a well-appointed hospital for contagious diseases in connection with orphan asylums and other similar institutions is well shown in the result of an outbreak of measles occurring at the large Hebrew Orphan Asylum at Amsterdam Ave. and 136th Street. The first case occurred on November 5th, and altogether about fifteen children were isolated in the hospital, which is located on the grounds and two hundred feet from the main building. The asylum authorities now report that all the cases have practically recovered, and, as no new cases have developed for a considerable period, it is believed that the outbreak has been entirely checked.

Self-Supporting Boys. — At the second annual meeting of the Industrial Colony Association, which was held on November 29th, stereopticon views were shown illustrating how boys taken from the slums of New York conduct a government of their own on a farm at Gardner, Ulster County, and an interesting sketch of the methods of the Association and its work during the past year was given. Each boy is required to work and be self-supporting, and an industrious lad, it was shown, can easily earn enough money to leave him a small weekly surplus after paying his necessary expenses. The report of the treasurer stated that the total receipts of the farm colony for the year were $3,117, which is a slight excess over the expenditures.

Dr. Hong Bad. — Dr. Hong Bad, a Chinese physician, educated at Canton, who for the past sixteen years has had a thriving practice among his fellow-

countrymen in the Mott Street colony, was one of the victims of the severe storm of November 26th. Having been taken with a chill, followed by high fever, and having tried in vain one after another of the celestial remedies with which he was accustomed to treat his patients, he finally determined to entrust himself to the unhallowed hands of American practitioners, and made his way to Bellevue Hospital. There, after a comfortable night's rest, during which his most distressing symptoms were relieved, he did not hesitate to confess that "Melican doctor alle samee heap good."

A CENTENARIAN. — Mrs. Bridget Fitzpatrick died at her home at New Brighton, Borough of Richmond, on November 28th, in her one hundred and first year. She was born in Ireland on Christmas Day, 1797, and came to this country over fifty years ago. She was always in good health until three weeks before her death, when she had a severe fall.

DR. JAMES A. MOORE. — Dr. James Alexander Moore, a physician well known in New York, died at Helena, Montana, on November 29th, at the age of fifty-three. He was born at St. Croix, Danish West Indies, and was graduated from Yale College in the class of 1867. He received the degree of M.D. from the University of the City of New York. A few years ago he removed to Helena, where he established a successful practice and was highly esteemed.

Miscellany.

THE HUMAN ALIMENTARY SYSTEM.

IN preparing an address on "Some Rudiments of Intestinal Surgery," delivered before the Midland Medical Society at Birmingham,[1] Mr. Frederick Treves has made certain remarks upon the human alimentary system, its present limitations, and possible future reversionary evolution, which are so apposite and so happily expressed that we are glad to reproduce them for the benefit of our readers. Discussing his first topic, "Signs of Degeneracy in the Human Alimentary System," Mr. Treves says:

> Any one who still persists, on such an occasion as the present, in giving exclusive prominence to abdominal surgery cannot but be reminded of the fable of Æsop which relates to the "Belly and the Members." It will be recollected that in that parable the members complained that their interests were not duly recognized, and that the pompous and overbearing attitude assumed by the belly was inconsistent with its intrinsic importance and with the rights and privileges which the members claimed as portions of the body politic. So far as the corporation of medicine is concerned it may be argued that enough for the present has been said about the abdomen and its concerns, and that it is time that we returned to the needs of the extremities.
>
> In begging, however, that you will allow me to limit my remarks this evening to that perhaps over-exalted subject, abdominal surgery, I may urge that the extravisceral parts of the body have had an almost exclusive monopoly of surgical attention for many centuries, and that Æsop, who was ignorant of even the fashionable exploratory incision, decided his fictitious quarrel in favor of the belly. I would wish to deal solely with so much of this great subject as concerns the intestines and with such details in that department as may be of some present interest.
>
> As a preliminary and introductory matter I may assume that all surgeons who have concerned themselves with intestinal surgery must be growing sceptical in regard to the alimentary canal of man and its fitness for its reputed functions, and must be in doubt if it deserves the encomiums which have been lavished upon it as an efficient work of Nature.
>
> The actual body of man seems to have changed but little since his first appearance on the earth, but the environment of the man has changed in the mean time to an extent beyond all reasonable conception. Now it is a question if the alimentary canal has adapted itself to this latter change. It is a question if the human digestive organs have progressed with the times, and have advanced with that progress of events which has raised man from a clever brute to a cultured Epicurean. It is a question, indeed, if our stomach and intestines are — to use a common expression — quite up to date, or are quite adapted to the enlightened individuals they serve. The naked cave man scrambled out his life thousands of years ago, and was contemporary with the long extinct cave bear and cave hyena, yet his skeleton differs in no essential from the skeleton of the modern dandy who, arrayed as Solomon in all his glory, suns himself to-day in Rotten Row. A nineteenth-century public dinner would probably have confined the cave man to his cave for many sorrowful and painful days, and if the modern alderman had to dine on badly-cooked hyena meat torn from the bone by his own incisor teeth, he would possibly find himself in a few days upon the operating-table. Yet the same alimentary canal has had to do duty for the two specimens of humanity and for the two types of feast. It is no matter of wonder that it has failed somewhat in the Herculean effort of adaptation.
>
> That it has not wholly succeeded is evident by many signs. If the cave man could return to earth, and could travel by rail from London to Birmingham, he would notice that almost every field by the way had erected in it an isolated wooden boarding on which was painted a conspicuous inscription. From a certain repetition of these inscriptions he might gather that the painted words were incentives to religious fervor, or that they were patriotic expressions calling the traveller to deeds of heroism and virtue. He would be pained to learn that they were merely advertisements of aperient pills. It would appear, indeed, that these common objects by the traveller's way show that the cry of the people is not so much for light and leading as for laxatives. It is a curious comment upon the unfitness of the alimentary canal for its simplest duties, that the animal, the vegetable, and the mineral kingdoms have been ransacked to provide incentives to peristaltic movement. The discovery of a new laxative would excite more public interest than the discovery of a new planet, and the habit of aperient drinking must rank in the annals of intemperance as but little less enthralling than the vice of the tippler.

[These remarks suggest the following lines from a poem by the late Dr. Holmes, published some years ago in the JOURNAL:

> Our noble Art, which countless shoals invade,
> Some as a science, many as a trade!
> In every column quackery has its line;
> From every corner stares the doctor's sign;
> From every shore the straining vessel tugs
> Ill-scented balsams, stomach turning drugs;
> The keels of commerce clear the farthest surge
> Lest some old beldame want her morning purge.
> The seamen wanders on his venturous bout
> To turn a baby's stomach inside out.
> Rich were the Queen of yon hepatic isle
> With half her subjects squander on their bile;
> Rich were Van Buren could he pay his bills
> With half his people waste in "Brandreth's Pills,"—
> Or with their products fill his farmers' carts
> With tare and tret for reproductive parts.]

[1] British Medical Journal, November 5, 1898.

A further suggestion that the present type of alimentary canal is becoming obsolete is provided by the fact that in the literature of medicine a singularly prominent place is given to diseases of the stomach and intestines. The number of these maladies is legion, and in certain sections of the community dyspepsia can hardly be regarded as an abnormal condition. It is safe to say that among the so-called cultured classes one man in ten is "on a diet," and one woman in ten is "living on aperients."

As for the liver, it retains a place in our economy as a thing compounded of mystery, meddlesomeness, and inefficiency. While some patients speak of their livers with a certain amount of awe, others refer to that organ with a degree of familiarity which is almost irreverent. With many the liver is a kind of fetish which has to be humored and appeased, and no appeal to a doctor is more earnest than the prayer for "something to touch the liver." By others the liver is spoken of as if it were a piece of defective machinery, and is alluded to in terms which would be suitably applied to a motor car or a cheap watch. It is complained that the organ is always "out of order," that it "will not act," that it is perpetually in need of something to make it act, that it is "sluggish," that it is easily "upset." While the laity talk of their livers with an exactness which is based apparently upon most familiar acquaintance, the physician has not yet acquired a sufficient knowledge of that organ to enable him to define precisely even what is meant by "biliousness," or to give any reasonable scientific account of a "bilious attack." Time will probably show that the liver has played the part of a pampered charlatan, and that its reputed powers are to no little extent based upon a great physiological fraud. Wherever the truth might lie, it would appear evident that this much-physicked organ is not competent to deal with the requirements of the alimentary canal of modern man, or at least that it performs its duties in the halting manner of a worn-out machine.

THE ALIMENTARY SYSTEM OF THE FUTURE.

How things will fare with us in the future it is hard to say, but some hope of amendment is held out by the knowledge that Nature appears to be both ready and ingenious in modifying structure to meet individual requirements. One notices, for example, amongst mammals what extraordinary and probably satisfactory experiments have been tried with the cecum. The ornithorhynchus has a mere apology for a cecum, the ursidæ have no cecum at all, while many of the herbivora have ceca of immense proportions, which apparently play an essential part in digestion. The two-toed ant-eater seems to have been in doubt as to whether it should accept the mammalian cecum or content itself with the double cecal appendages of certain birds, and to prevent any inconvenience from its indecision it has provided itself with three ceca, one of the mammalian form and two of the type met with in certain birds. The vulpine phalanger has been very decided in its appreciation of the cecum, and has possessed itself of an appendage which is twice the length of its own body.

In the matter of the stomach Nature has proved to be most accommodating. The blood-sucking bat, or desmodus, living as it does on a highly-digested food which requires little more than storage, has almost solved the problem of how to live without either stomach or intestine. The fruit-eating bat, the pteropus, has turned its stomach upside down so that it might digest its food in comfort while hanging head downwards. The kangaroo has a stomach precisely like our large intestine, that is, arranged in sacculi so that its food may be packed away in small parcels, and thus not incommode the animal when taking its prodigious leaps. The ruminant stomach appears to have been the outcome of an unattractive and bulky diet on the one hand, and on the other hand of that passion for leisure and for reflection after meals which is so well marked in the common cow.

Without multiplying examples of apparent experiment and adaptation, one might be permitted to speculate as to the future form of the digestive canal of man. The human being is becoming toothless, and when it is recognized that a conspicuous function of the teeth is merely to provide material for the undoubted ingenuity of the dentist they will probably be allowed to go. Even now there are many people who appear to show no great anxiety to retain them. Recent operations in which the entire stomach has been excised without any very gross inconvenience to the patient would seem to suggest that one might possibly dispense with our present type of stomach. Our intestine is probably unnecessarily long, and the removal of considerable portions of it has done no more than add to the comfort of those individuals who have recovered from the operation. One patient of mine, who was the subject of congenital stenosis of the lower bowel, has been entirely relieved by the removal of the anus, rectum, sigmoid flexure and descending colon. The child's large intestine is in this case represented by the ascending and transverse colon only, very much to the convenience of the patient. The frequency with which the sigmoid flexure is involved in mechanical difficulties and the common occurrence of cancer in the rectum would suggest that the terminal part of the bowel is becoming effete, and may be regarded as degenerate by any pathological Max Nordau.

As a matter of simple speculation, it may be surmised that the coming man will be quite edentulous, that he will have a less enigmatical liver and no gall-bladder, and that his intestine will be considerably shortened and, it is to be hoped, considerably simplified. Extreme refinement in the selection of food materials and an exquisite cultivation of what is termed a "palate" may lead to an elongation of the esophagus and to the development of taste organs along its entire length. In the place of the present stomach it is probable that the edentulous man will develop a gizzard. A gizzard would appear to be a labor-saving organ which is to be depended upon, and which is little liable to get out of order. A gizzard would probably be a great comfort to the overworked man of business and to the seeker after pleasure who spends much of his life in Continental hotels. The ruminant stomach has many attractions. Its size would make it popular with the operating surgeon, and its leisurely method of disposing of its contents suggests intervals of calm in the rush of modern existence. A ruminant stomach in a human being, would, however, be inconsistent with the exclusively human habit of after-dinner speaking, and the actual act of rumination would no doubt be inconsistent with the amenities of the modern drawing-room.

THERAPEUTIC NOTES.

Kaczanowsky[1] employed successfully potassium permanganate in thirty-four cases of local tuberculosis; the process of application is a very simple one. The crusts having been removed as thoroughly as possible, the affected skin is powdered over with a layer of dry crystals of the permanganate, and then dressed with a thick cotton bandage; caution is necessary in protecting the nose and the eyes from the powder; pain is, however, liable to continue for some time after the application. As soon as the bandage is saturated with the secretions it is removed and the procedure repeated again.[2]

"Clinica Moderna" gives the following as a suitable pill-form for potassium iodide:

℞	Potas. iodidi	ʒ ii
	Sacch. lact.	ʒ i
	Lanolini	ʒ ss
M.	Et ft. pil. No. 50.	

[1] Deutsche Zeitschrift f. Chirurgie, September, 1898.
[2] Münch. med. Woch. 44, 1898.

METEOROLOGICAL RECORD

For the week ending November 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...20	29.77	46	49	42	61	63	64	N.W.	N.W.	18	20	O.	C.	.10
M..21	30.23	44	51	37	61	60	62	N.W.	W.	9	6	C.	C.	
T...22	30 21	40	46	34	87	83	85	N.	N.E.	10	6	O.	O.	
W..23	30.07	42	49	34	91	79	85	N.	N.W.	8	8	O.	C.	
T...24	29.98	42	46	39	83	98	90	N.	N.	15	8	O.	R.	.10
F...25	30.01	34	40	27	68	52	60	W.	W.	26	18	C.	C.	.25
S...26	30.02	28	32	23	65	66	66	W.	N.E.	6	16	O.	N.	
☞	30.04	39	45	34	75	72	73							

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 26, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung disease.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	1084	301	8.55	18.36	1.80	2.52	1.98
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,340,226	—	—	—	—	—	—	—
St. Louis	623,000	—	—	—	—	—	—	—
Boston	528,463	181	29	25.34	—	—	.55	3.82
Baltimore	508,389	175	42	12.84	7.70	1.14	4.40	5.50
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	91	27	12.10	14.30	—	5.50	4.40
Washington	277,000	92	27	12.96	11.88	1.08	4.32	7.56
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	43	9	9.32	13.98	—	2.33	—
Nashville	87,754	30	8	6.66	—	3.33	—	3.33
Charleston	65,165	30	7	16.66	—	16 66	—	—
Worcester	108,240	19	12	15.78	—	5.26	5.26	—
Fall River	95,919	—	—	—	—	—	—	—
Cambridge	89,724	17	6	17.64	17.64	—	—	17.64
Lowell	88,641	22	9	8.30	20.75	—	—	4.15
Lynn	68,703	—	—	—	—	—	—	—
New Bedford	66,340	—	—	—	—	—	—	—
Somerville	61,101	21	5	9.52	19.04	—	—	4.76
Lawrence	57,263	22	11	12.45	8.30	4.15	—	4.15
Springfield	56,501	18	5	16.66	5.55	—	—	16.66
Holyoke	43,424	5	0	—	20.00	—	—	—
Brockton	37,278	—	—	—	—	—	—	—
Salem	36,883	10	1	—	—	—	—	—
Malden	34,613	—	—	—	—	—	—	—
Chelsea	33,468	10	5	—	20.00	—	—	—
Haverhill	32,022	9	2	22.22	—	—	—	—
Gloucester	30,569	6	1	—	—	—	—	—
Newton	29,716	9	2	11.11	—	—	11.11	—
Fitchburg	29,438	9	5	—	11.11	—	—	—
Taunton	28,167	11	0	18.18	—	9.09	9.09	—
Everett	25,338	6	1	—	—	—	—	—
Quincy	23,549	7	1	—	28.56	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	6	1	—	16.66	—	—	—
North Adams	20,971	5	4	20.00	—	—	—	—
Chicopee	17,842	3	1	—	33.33	—	—	—
Medford	16,511	4	3	25.00	—	—	—	25.00
Newburyport	14,945	4	0	—	—	—	—	—
Melrose	14,032	3	0	—	—	—	—	—

Deaths reported 1,961; under five years of age 516; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 188, acute lung diseases 273, consumption 236, diphtheria and croup 61, typhoid fever 50, diarrheal diseases 32, whooping-cough 13, cerebro-spinal meningitis 12, scarlet fever 10, measles 7, erysipelas 3.

From whooping-cough New York 8, Pittsburg and Haverhill 2 each, Providence 1. From cerebro-spinal meningitis New York 6, Baltimore 2, Boston, Providence, Worcester and Somerville 1 each. From measles New York 4, Boston 3. From scarlet fever New York 5, Boston, Providence, Lowell, Lawrence and North Adams 1 each. From erysipelas New York 2, Boston 1.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending November 19th, the death-rate was 17.1. Deaths reported 3,872; acute diseases of the respiratory organs (London) 285, diphtheria 90, fever 84, diarrhea 61, measles 61, whooping-cough 45, scarlet fever 30.

The death-rates ranged from 8.8 in Croydon to 24.2 in Preston; Birmingham 15.9, Bradford 20.3, Cardiff 12.0, Gateshead 15.6, Hull 12.0, Leeds 16.5, Liverpool 22.6, London 16.6, Manchester 19.4, Newcastle-on-Tyne 22.4, Nottingham 16.1, Sheffield 17.8, Swansea 17.4, West Ham 13.8.

BOOKS AND PAMPHLETS RECEIVED.

Apocynum Cannabinum, "The Vegetable Trocar." By T. S. Dabney, M.D., New Orleans, La. Reprint. 1898.

A Synopsis of Surgery. By R. T. Tobin, F.R.C.S.I., Surgeon to St. Vincent's Hospital, Dublin. London: J. & A. Churchill. 1898.

Verwerthung der Röntgenstrahlen in der Geburtshülfe. Vorläufige Mittheilung von Dr. Robert Müllerheim in Berlin. Leipzig. 1898.

Doctor Therne. By H. Rider Haggard, Author of "She," "Allan Quatermain," etc. New York, London and Bombay: Longmans, Green & Co. 1898.

Some Observations of General Interest Regarding the Course and Management of Cataract. By J. H. Woodward, B.S., M.D., New York City. Reprint. 1898.

A History of Veterinary Medicine: An Address to the Students of Veterinary Medicine of Harvard University. By Charles P. Lyman, F.R.C.V.S. Cambridge. 1898.

The Treatment of Chronic Endometritis. The Surgical Treatment of Appendicitis. By F. T. Meriwether, M.D., Asheville, N. C. (U. S. A. Retired). Reprints. 1897–98.

Consumption: Cases that Should go to Colorado and Cases that Should Stay at Home. The Technique of Tonsillotomy. By Geo. L. Richards, M.D., Fall River, Mass. Reprints. 1898.

Report of a Death following Immediately an Operation for Nasopharyngeal Adenoids under Chloroform, with Remarks on Chloroform Anesthesia in this Operation. By Frank Whitehill Hinkel, A.M., M.D. Reprint. 1898.

Further Observations Regarding the Use of the Bone-Clamp in Ununited Fractures, Fractures with Malunion and Recent Fractures with a Tendency to Displacement. By Clayton Parkhill, M.D., Denver, Col. Reprint. 1898.

Some Considerations on the Pathology and Treatment of Exophthalmic Goitre. By Augustus A. Eshner, M.D., of Philadelphia, Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital, etc., Philadelphia. Reprint. 1898.

The Sexual Instinct and Its Morbid Manifestations from the Double Standpoint of Jurisprudence and Psychiatry. By Dr. B. Tarnonsky (Imperial Academy of Medicine, St. Petersburg). Translated by W. C. Costello, Ph.D., and Alfred Allinson, M.A. Paris: Charles Carrington. 1898.

Intestinal Auto-intoxication. Stomach Disturbances Caused by Hernia of the Linea Alba in the Epigastrium. Chronic Catarrh of the Stomach. Transillumination of the Stomach with Demonstration on the Person. By Chas. D. Aaron, M.D., Detroit, Mich. Reprints. 1897–98.

The Practitioner's Manual: A Condensed System of Medical Diagnosis and Treatment. By Charles Wamune Allen, M.D., Consulting Genito-Urinary Surgeon to the City (Charity) Hospital; Consulting Dermatologist to the Randall's Island Hospital, etc. New York: William Wood & Co. 1899.

A Manual of the Practice of Medicine. By Frederick Taylor, M.D., F.R.C.P., Physician to and Lecturer on Medicine at Guy's Hospital; Consulting Physician to the Evelina Hospital for Sick Children; Examiner in Medicine at the University of London. Fifth edition. London: J. & A. Churchill. 1898.

Acromegaly: An Essay to which was awarded the Boylston Prize of Harvard University for the year 1898. By Guy Hinsdale, A.M., M.D., Fellow of the College of Physicians of Philadelphia and of the American Academy of Medicine; Member of the American Neurological Association and the American Climatological Association, etc. Reprint. 1898. Detroit: William M. Warren. 1898.

Removal of an Angioma of the Liver by Elastic Constriction External to the Abdominal Cavity, with a Table of Fifty-nine Cases of Operation for Hepatic Tumors. The Advantages of the Trendelenburg Posture during all Operations Involving Directly or Indirectly the Cavities of the Mouth, Nose and the Trachea, with a Report of Two Cases of Epithelioma and Sarcoma of the Tonsil. The Advantages of a Permanent Abdominal Anus and of Total Closure of the Sacral End of the Rectum, in Operations for Cancer of the Rectum. By W. W. Keen, M.D., Philadelphia. Reprints. 1898.

Original Articles.

HABIT NEUROSES AS TRUE FUNCTIONAL DISEASES.

BY MORTON PRINCE, M.D.,
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I. WHAT IS A FUNCTIONAL DISEASE?

It is sometimes said that there is no such thing as a functional disease. This statement is based upon two facts: first, upon the historical fact that many diseases which at one time were called functional have been found in the light of later knowledge to be due to organic conditions, for example, neuralgia, epilepsy, angina pectoris, etc.; and, second, upon the fact that as no vital action, physiological or pathological, can occur without corresponding molecular changes in the cells of the tissues, organic alterations of some kind must underlie all pathological phenomena. To this statement it may be answered that, as to the first fact, it does not necessarily follow that because many supposed functional diseases have turned out to be organic, that, therefore, no deviation from the normal can be functional, and the argument from the second fact involves a confusion of thought as to the meaning of the term organic.

It is perfectly true that, according to the modern view of physiological activity, whether this activity be psychical or corporeal, molecular changes must occur in the organs in question, and that these molecular changes must be the antecedent or accompaniment of the functioning of the organ. For example, during thought certain but as yet unknown changes occur in the cells of the brain, probably involving a waste of tissue. Digestion involves molecular or chemical changes in the peptic cells of the stomach as an antecedent to the secretion of the gastric juice. Muscular contraction involves physical or chemical changes within its tissue.

So that from this point of view no vital phenomenon, whether it be of disease or health, can occur without a basis of organic change. But the application of this truth to the question of the nature of a functional disease involves an entire confusion of terms. This use of the term organic is very different from what is meant when we speak of organic disease. From a pathological point of view, by organic changes are meant physical changes in the tissues of a *kind* which is different from those which subserve the processes of health. The distinction is one of kind of change. This difference is plainly evident, for example, when we think of gross anatomical lesions, like ruptures of vessels, abscesses, inflammatory processes, etc. It is also not difficult to recognize the difference in kind of the organic changes in the various degenerative diseases, like tabes dorsalis, general paralysis of the insane, progressive muscular atrophy, parenchymatous degeneration of the viscera, etc., from what occurs in health. But it is not so easy to do so, though the difficulty without doubt depends upon our lack of knowledge, in another class of diseases, in which would be included exophthalmic goitre, chorea, some of the tics, writers' cramp, torticollis, some of the dyspepsias and dysmenorrheas and other visceral disturbances.

On the other hand, it is not at all clear, in fact, it may be held to be improbable that in the so-called neuroses and psychoses, such as hysteria, neurasthenia, the nervous disturbances following eye-strain, insanity of doubt, fixed ideas, or in corporeal disturbances, which would include some dyspepsias, diarrheas, so-called habit symptoms, and other departures from health in the functioning of the viscera, it is improbable, I say, that the anatomical changes are different in kind from what occur in health. At least, this is the view for which I propose to cite what appears to me to be strong confirmatory evidence. For a disease to be functional it must, strictly speaking, be a *consequence or concomitant of the same kind of physical changes which subserve the functioning of an organ in health, and be originated as a response to stimuli by the same laws which govern the functioning of the organ in health.*

That is to say, for example, in consequence of certain antecedent conditions (disease, auto-suggestion, fatigue, etc.) the organism has so adapted itself to its new relations that customary stimuli instead of awakening the usual physiological response excite unusual or so-called pathological ones (pain, spasms, palpitation, vaso-motor disturbances, etc.), the physical processes being the same in either case.

A functional disease, then, may be defined as one in which the anatomical processes are similar in kind to those which occur in health, which makes use of the natural working or functioning of the system, and is the expression of normal physiological laws, but differs from the norm in that the functioning is an undesirable or a disagreeable response to the environment (or internal stimuli) instead of a desirable and agreeable one. In other words, it is a true perversion. Any conception of a functional disease than this is, to me, unthinkable. My thesis involves a series of propositions:

(1) The mode of genesis of a functional disease is education, which may be voluntary or involuntary, conscious or subconscious, physiological or pathological. Restating this: The nervous system may by a process of education be taught to respond to its environment or to internal stimuli in such a way as to generate painful sensations or undesirable motor effects.

(2) The processes involved are exactly the same in kind as are involved in normal education and due to the same laws.

(3) The painful (disagreeable, undesirable) motor and sensory and other phenomena thus developed constitute so-called disease (neuroses and psychoses).

(4) The original exciting cause of such phenomena may be organic disease, such as inflammation, traumatism, or it may be pernicious habits, strong emotions, wear and tear of life, or it may be poisons (influenza, typhoid, lead, etc.), in fact, almost any influence.

(5) The constant repetition of such causes educates the nervous system to continue this response long after the original cause has subsided.

(6) Auto-suggestion and other forms of mental influence (emotions, etc.) and external suggestion may play a prominent rôle both in the genesis and persistence of the perversion.

(7) Such perversions become habit neuroses or psychoses.

To perceive this clearly, we must examine the normal workings of the system. The following propositions may then be accepted:

(*a*) All acquirement, mental and physical, depends upon, and largely consists in, the association of nervous processes so that the excitation of one element of the process automatically excites the rest.

(*b*) Without this, education would be impossible.

(*c*) The organism tends to constantly readjust itself to its environment, so that new combinations of feelings and movements are being formed and excited by accustomed or novel stimuli, or old combinations become modified or cease from disuse.

These statements hardly need to be illustrated. The law of association of mental states is well known. Similarly all physical acquirements, whether it be simply everyday commonplace acquirements, like buttoning a coat, talking and writing, or exercises of skill, like tennis and ball playing, riding, fencing, sparring, or the accomplishments, like music-playing, all depend upon the association of very complicated nervous processes involving sensory and motor neuroses. So complicated are these nervous arrangements, and so automatic do they become, that it requires considerable attention and analysis to recognize the different sensory and motor elements involved.

Try to analyze what elements are involved in the simple act of buttoning a coat, and the small part which conscious volition plays in directing the individual steps of the process, and I think the result will be a surprise. The nervous processes involved in performing any act of skill are exceedingly highly organized and therefore to a very large extent automatic. Conscious volition is mostly limited to setting the arrangement in action and guiding it in desired directions. As bearing on pathological associations, the normal habitual associations of the viscera are instructive. Hunger and the feeling of "emptiness" of the stomach associated with a particular hour of the day (that is, bodily habits) is significant of the adaptation of the organism to its environment. Change the dinner hour, or the hour when one is accustomed to take a "bite" between meals, and these sensations become readjusted to new habits. The movement of the bowels at fixed times, the desire to urinate in association with particular acts or places and times, become similarly automatic. As I shall later point out, these last two functions may become so strongly associated with (external) elements in the environment as to become true neuroses.

(*d*) It is customary to consider normal physiological reactions as in general synonymous with agreeable or not painful reactions, and pathological physiological reactions as synonymous with disagreeable reactions. That is to say, because certain feelings (for example, pain, nausea, dizziness, palpitation) occur as a resultant of certain pathological conditions, that therefore these feelings are pathological in themselves. This confusion has tended to obscure the true nature of many functional diseases. Pain is a normal physiological reaction. Prick the skin and pain normally not pathologically results. Tickle the throat and nausea similarly follows. Place a galvanic electrode over the cranium and dizziness is excited. Arouse an emotion and palpitation, tremor and sweating are experienced. The same is true of all phenomena, which, when grouped in a particular way and associated with organic disease processes, are called symptoms. Among them may be further mentioned tickling sensations (paresthesia), vomiting, sneezing, lachrymation, photophobia, tremor, palpitation, sweating, spasms, feeling of cold (chills), heat, fatigue and a host of others. The important point for recognition is that these symptoms are the normal physiological reaction of the organism to stimuli, whether these be disease or the environment. Illustrations of pain as a physiological phenomenon are that felt in the forehead when ice is taken in the mouth, the spasm of the eyelids with its peculiar painful feelings when acids are similarly taken.

(*e*) These disagreeable phenomena are the reaction of the organism to harmful agencies, and the apparent purpose of them is to protect the individual from the action of such agencies.

(*f*) Now *a priori*, if we could educate the system to respond to an ordinarily pleasant or indifferent stimulus with such unpleasant sensory and motor reactions and so associate them together that they would always occur, we would have a neurosis.

(*g*) All observation indicates that this is what does occur, and that it is frequent, constituting what I have termed an association neurosis. More familiarly it is known as a habit neurosis, or neuro-mimesis. These are true functional diseases.

(*h*) Finally it is inconceivable that normal physiological laws should be effective only so long as the resulting phenomena are agreeable and desired, and should suddenly cease when these are disagreeable and undesired. This would be equivalent to nature acting by special laws, not general laws.

II. ILLUSTRATIVE CASES.

In illustration of these principles, the following cases may be cited representing symptomatically widely differing forms of neuroses:

CASE I. *Hay Fever.* — In a previous contribution[1] to this subject by the writer a case of hay fever of a functional nature occurring in the practice of Dr. John Mackenzie of Baltimore was cited. A group of similar cases has since come under my own observation.[2]

For evidence of the nervous origin of these cases I must refer to the original report. I can only mention the main points here. My case was one of five, all members of the same family, and is significant because it shows the intensity which a functional process may assume and the variety of physical effects which it may originate.

The exciting cause of the attacks, which always come on about the last of May, was anything which had an irritant action on the mucous membrane of the nose or eyelids (tobacco smoke, dust, sunlight, pollen, (smell of) flowers, glare of sunlight, etc.). The attacks come on in the following way (I quote from my notes): "A few days before the expected time she begins to feel apprehensive and nervous. She begins to wonder whether the attack is coming on or not; watches herself and frequently examines her eyes in the glass to see if they show congestion, and so on. Then, a few days later, while in this nervous condition and while exposed to one of the ordinary causes, the attack suddenly develops." The attack includes all the usual symptoms, local and general, of hay fever, inflammatory as well as nervous. Cough and asthmatic attacks follow secondarily.

The grandmother of this patient also suffered from hay fever, and was always taken ill on August 20th, waking up in the morning with the symptoms. Attempts have been made to deceive her as to the approaching date but without avail.

One brother is also taken regularly on August 20th. My patient was for three years kept free from attacks by the "mind cure." On the fourth year they re-

[1] Association Neuroses: Journal of Nervous and Mental Diseases, May, 1891.

[2] Reported in Annals of Gynecology and Pediatry, 1895.

turned, the original mind curist being dead. The theory which I adopted in this case was the following: The symptoms represented an association or habit neurosis, that is to say, by constant repetition, year after year from early childhood, the symptoms had become so associated or bound together into a group, that they formed a neurosis or sort of nervous mechanism which only required an excitation to set them off, as you might press a button to set working a piece of mechanical mechanism. Auto-suggestion played a part in the mechanism to this extent. The state of apprehension and expectation which the patient exhibited during the week (or more) before the attack, was equivalent to a deliberate suggestion to herself — as much as if she had said, "About May 18th, as soon as exposed to an irritant, I shall have an attack." Then it followed that when May 18th came, the irritant, dust or sunlight, necessarily excited the nervous mechanism. Previous to this date the same irritant had no effect, because the suggestion was that this was not to take place until a given date.

This is the rôle which suggestion plays under experimental conditions and when used for therapeutic purposes, and there does not seem to be good reason to doubt its efficacy in the genesis of functional disease.

This person was substantially cured by suggestion, which I think may be taken as additional proof of the diagnosis.

Phobo-neuroses. — A very curious and interesting class of cases illustrative of habit symptoms is what I have termed phobo-*neuroses* in distinction from phobo-psychoses. The clinical manifestations are various bodily symptoms, like tremor, palpitation, ataxia and vasomotor symptoms and the like, which are the normal physiological expression of the emotion of fear and self consciousness. Originally in these cases these symptoms are excited by timidity on the part of the individual; later, as a result of constant excitation, they continue, long after the fear ceases to be felt, as a sort of paradoxical emotion and always excited by the same circumstances which formerly caused the mental state of fear. They differ from the ordinary so-called "phobias," in that no imperative mental state is present. This neurosis is quite common in professional people who appear before the public, particularly musicians and singers.

A characteristic peculiarity of the association symptoms, and one to which I shall again have occasion to refer, is that they always appear in a fixed order, and the group is always made up of the same symptoms. For example, the group and order of development in one case was the following: (1) feeling of goneness and general tremor; (2) throbbing in the head; (3) palpitation; (4) perspiration; (5) general weakness.

In another case it was (1) dryness of the throat; (2) feeling like that of indigestion; (3) cold and moist hands; (4) palpitation; (5) ataxia of hands.

A second characteristic of habit neuroses is observed in these cases, namely, *the persistence of the symptoms under the influence of the mind and of associations long after the original exciting cause of them has ceased to exist.*[1]

[1] It is interesting to note that Nelson probably suffered from a habit neurosis, as a result of the anxiety and strain that he underwent during one of his services in the Mediterranean. "Do not fret at anything," he told his friend Tronbridge; "I wish I never had, but my return to Syracuse in 1798 broke my heart, which on any extraordinary anxiety now shows itself, be that feeling pain or pleasure. On the 18th I had near died with the swelling of some of the vessels of the heart. More people, perhaps, die of broken hearts than we are aware of." (Mahan's "Life of Nelson," vol. I, p. 341.)

I give briefly the first of the two cases just mentioned:

Observation II. The subject was a professional singer. When he first began to sing in public he had the usual timidity and self-consciousness, in consequence of which the various physical manifestations of fear, which later made up the neurosis, were exhibited. In the course of time, as the result of experience, he attained perfect self-possession without fear of the audience, but all the physical expression of the early emotion persisted. That is, when he tried to sing in public he suffered intensely from a feeling of goneness, tremor, throbbing in the head, palpitation, perspiration, general weakness. Practising for a concert brought on the same symptoms. He insisted stoutly that he was without any real fear or shyness. Apparently the symptoms were associated with the mere idea and act of singing. In severity they were sufficient to practically incapacitate him. He did not realize the nature of the neurosis, but thought he might have some kind of organic disease. He was cured by suggestion.[2]

Local paresthesia. All sorts of local neuroses have a pathology of this kind. It is not uncommon to find this neurosis in women as ovarian or vaginal pain and distress. In one patient of mine (Observation III) it has the form of pain in the ovarian and uterine region, which has been of several years' duration. The patient declares that this pain is exactly the same sensation and was first excited by a pessary, which for this reason she was unable to wear. After removal of the pessary the paresthesia continued. Sometimes such neuroses are excited by displacements, ruptured perineum and other organic troubles, but continue after the cure of these local diseases. The co-existence of neurasthenia or of the hysterical constitution facilitates the neurosis.

Observation III. Miss D., age about thirty, presented herself for various neurasthenic symptoms of about three years' duration. In intensity the symptoms were sufficient to incapacitate her for ordinary occupations and pastimes. Careful analysis showed plainly that her condition was a pseudo-neurasthenia of psychical origin. She was readily cured in a few weeks, with the exception of a pain in the lower left abdominal region. This persisted until its nature was recognized, or for about a year after she was otherwise well. A gynecological examination was made by Dr. C. M. Green, at my request, without discovering any ostensible cause for this symptom or anything abnormal. It transpired that the patient had received gynecological treatment about three years previously, and had worn a pessary. This pessary had caused so much pain that it was necessary to give up its use after a few times. Miss D. insisted that the pain was exactly the same in kind and location as that caused by the pessary, and, in fact, was the same pain. After a careful study of the conditions under which the pain was felt the diagnosis of habit pain was made and explained to the patient, and all active treatment abandoned, it being agreed that the matter should be ignored. Cure resulted in a few (four to six) weeks.

In another patient the uterine and ovarian pain prevented walking or any exercise, and was plainly kept alive by gynecological treatment. I think this is not infrequently the case.

Observation IV. Miss W., age twenty-three years, a hystero-neurasthenic, incapacitated by pains in head, insomnia, emotional conditions, etc., unable to take any exercise on account of uterine pain brought on thereby. Is being treated by hot douches, morning and night.

Analysis shows the uterine pain to be pure habit pain, kept alive by faulty ideation. Local treatment forbidden, nature of pain explained, and patient directed to take ex-

[2] This case will be found more fully described in a paper on "Fear Neuroses," to be published in a later number of the Journal.

ercise. Pain disappeared rapidly in course of a week or two. Apprehension played a prominent part in the excitation of this pain.

An instructive example of the neurosis in another region of the body is the following:

OBSERVATION V. Mrs. B., age thirty-two years, in the course of an attack of grippe, in 1896, suffered from a painful feeling of pressure in the back of head (imitated by my pressing firmly with my thumb on the back of the neck) and a queer feeling in the spine running up to the head. After recovery from the grippe this paresthesia continued to this date (1898). It comes on in attacks lasting a minute or two. In addition to the feeling of pressure, the neck feels stiff, as if she could not turn it to the right. In the attacks her husband notices that she holds her head stiffly and does not turn it when spoken to. In the intervals she is free from symptoms, but in the attacks she actually can turn her head, as demonstrated during the conversation when she was induced to use will power. But she seemed to have an inhibition of will at such times.

The peculiarity of the neurosis was that it came on exclusively under certain conditions, namely, when at table during meals, and in society, but not under other conditions which physiologically were the same.

She had been obliged to give up going to church, to the theatre and social entertainments, nevertheless, she could go to card parties. In other words, she could sit at table and be with people, provided she played cards, but could not sit at table for the purpose of eating her meals. The attacks alarmed her. She did not give the impression of an hysterical, nervous or excitable person, but was self-contained and natural. She was, however (what I am inclined to think an element of importance), self-willed, unyielding in opinion, and apprehensive as to the gravity of the trouble. This apprehension I found it impossible to eliminate from her mind. It became practically an imperative idea. She became, as is common, secondarily suspicious of other people remarking on her condition. It was this apprehension, I think, which prevented any permanent therapeutic effect being produced. The mode of development in this case was, I conceive, first the grippe producing a local neuritis, and later habit, association and apprehension.

Night-palsy. I was surprised to find that a case of night-palsy was, to all appearances, of this nature, my suspicions being first aroused by the fact that the attacks disappeared immediately after taking a drug before it could have been absorbed.

OBSERVATION VI. A young woman for a long period of time (eight years) had been awakened four or five times every night by attacks of palsy affecting the hands. Under the influence of a placebo the attacks at once nearly, but not completely, ceased. She then passed out of observation. This patient made for me some interesting observations as to the comparative duration of the attacks according as she did, or did not, take the placebo. The diagnosis of habit neurosis seemed to be justifiable. Originally the palsy was undoubtedly due to some other pathology, but had later passed into a continued and habit neurosis.

Neurasthenia. While habit neuroses are best studied when occurring in a pure and uncomplicated form, they probably most frequently are met with as a part of a complicating neurasthenia. A careful study and analysis of the symptoms of neurasthenia in individual cases will reveal the fact that many of them are pure association or habit symptoms. Habit neuroses are very easily formed in a neurasthenic state, and under these conditions their persistence is facilitated, and their dissipation is more difficult. In a neurasthenic condition of the body inhibition is less potent, and automatic processes are encouraged.

It is not infrequent that, in individual cases of what is apparently neurasthenia, careful study will show that, while originally the symptoms began in a condition of fatigue, this state has long since passed away, and that the symptoms continue as a false or pseudo-neurasthenia. This has sometimes been the result of pure but unconscious cultivation through ill-directed care on the part of the patient, friends or physician, or all three.

A pseudo-neurasthenia is readily cultivated, and becomes a perversion of bodily functions — a true functional disease. Such symptoms are cultivated just as vice may be cultivated, consciously or unconsciously, and result in the sexual perversions.

A pseudo-neurasthenia of this kind is usually represented by those cases which the physician recognizes as due to the pernicious influence of the mind on the body in some unaccountable way, but of which the exact *modus operandi* is not clearly distinguished. While the auto-suggestion is perceived the habit process is overlooked. I will not take the time to give illustrative cases, as they must be analyzed at length to be of value, but I wish to point out that in neurasthenia and hysteria the symptoms may become truly functional, and these diseases may be pure functional diseases, in that all true fatigue may have passed away, and the symptoms, including that of fatigue, be simply perversions of the physiological functioning of the body.

Prognosis and treatment. If the nature of the neurosis is recognized and appropriate treatment instituted, most cases are amenable to treatment. Many may be rapidly and perfectly cured. But this depends largely upon the length of time the habit has existed and its fixedness. In this respect it is like moral habits and that of tobacco and opium.

When the neuroses are a part of true neurasthenia their cure depends upon the removal of the fatigue state. There is also a tendency to relapse, as is the case with moral habits. A noticeable peculiarity is this tendency of the neurosis, when a part of neurasthenia, to return whenever a condition of fatigue returns or there is a relapse to the neurasthenic state. This may be the first indication of a coming breakdown. As to treatment, I believe the best to be the educational treatment advocated by the writer for neurasthenia.[4]

REPORT OF TWO CASES OF SPINA BIFIDA TREATED BY OPERATION.[1]

BY J. COLLINS WARREN, M.D., BOSTON.

THE difficulty of obtaining complete asepsis in cases of operation for the relief of spina bifida in infants is so great that a report of the two following cases is thought worthy of mention to the Society. The obstacles to obtaining primary union in these operations consist either in the condition of the tumor itself or in its locality. Both of these difficulties are illustrated by the two cases reported below. In many cases the integuments of the tumor are in a state of ulceration, owing to the great tension of the part and thinning, and ulceration of the superficial skin. In another set of cases, the situation is such as to increase greatly the exposure to infection — the seat of the spina bifida being in the lower dorsal or sacral region. Under

[1] Read at the Obstetrical Society of Boston, October 1, 1898.

[4] Boston Medical and Surgical Journal, October 6, 1898.

these circumstances, the difficulty of maintaining a purely aseptic dressing over the wound is sometimes almost insuperable.

Case I. This patient was seen by me in consultation with Dr. Reuben Willis, of Somerville, eight days after the birth of a child. Labor was normal in every respect. Immediately after birth a small tumor was observed in the dorsal region between the scapulæ. At the time of birth it was somewhat smaller than a hen's egg, and had been so compressed that it had not interfered with the delivery of the child. There was no family history of any such deformity. The mother was thirty-eight years of age, and had a child of seven years, living and well. After birth the child nursed readily and seemed to be perfectly well and comfortable, except for the presence of a tumor which caused some discomfort when pressed or pulled. Inspection revealed a plump, well-formed child, weighing seven and a half pounds, normal in every respect except for the presence of the tumor in the dorsal region. The tumor had increased somewhat since birth, and



Fig. 1.



Fig. 2.

was oval in shape, situated in the median line between the scapulæ, with its centre over the third dorsal spinous process. The mass was soft, fluctuating and freely movable about its constricted base, which served as a pedicle. There was a cutaneous ulcerating surface on the tumor about the size of a silver dollar. Palpation showed that the mass was tender, and the cyst did not yield to pressure; it was remarkably translucent when inspected by transmitted light. The operation was performed on the eleventh day, the patient being etherized. After all possible antiseptic precautions had been taken, an oval incision was made around the base of the tumor parallel to the long axis of the body. Upon cutting through the skin a thick layer of connective tissue was exposed, within which was the true pedicle of the sac. When carefully isolated this pedicle was about eight millimetres in diameter, and could be freed so as to form a sort of cord passing down to the vertebral column. The tumor was pulled out as far as possible, and a chromicized catgut ligature placed around the lowest portion of the pedicle. The tumor was then excised, and a deep tunnel-shaped wound resulted, which was closed from below upwards by means of buried chromicized catgut sutures. The skin was held in position by means of interrupted sutures, and the wound protected with sterile gauze. The patient rallied well from the ether, and continued to nurse as well as before. The first dressing was performed on the fifth day, when the superficial stitches were removed, and the wound was found to be suppurating; but this led to no constitutional disturbance. The suppuration, however, was confined to the superficial skin wound, and did not affect the deeper parts. Granulations soon formed, and healing took place slowly, but was complete at the end of three weeks. The condition of the child progressed as though nothing had taken place. It rested, nursed regularly, slept well and gained the usual amount of weight. Towards the end of the second week there was some prominence of the fontanels, indicating increased tension within the cranial cavity, but this gave rise to no discomfort. When three weeks old the circumference of the child's head was 37 centimetres, when five weeks old, 40 centimetres. The distance over the external occipital to the naso-frontal suture was respectively 23.5 centimetres and 26 centimetres. The veins of the scalp were considerably distended, but the head as a whole did not appear to be disproportionately large. When three months old a slight general convulsion occurred, which was undoubtedly of gastric origin. On examination seven months after the operation, a small, firm cicatrix was observed at the site of the operation; but it was difficult to detect any defect of the spines or laminæ. The disproportion between the size of the head and body was very marked, and the picture was one of chronic hydrocephalus. The child weighed sixteen pounds, which was one pound less than a month before. The circumference of the head was 51 centimetres. The occipito-frontal measurement was 37 centimetres. The fontanels, coronal, lambdoid and sagittal sutures were widely open, but not bulging. The superficial cranial veins were considerably dilated. Subjectively, the child seemed perfectly well, and the mother was very much pleased with its condition.

Case II. The patient is a stout healthy child about two months old. There is a soft, fluctuating swelling at the junction of the dorsal and sacral region of the spine. About ten weeks before, the tumor had been aspirated and about four ounces of a clear fluid had been drawn, but the tumor had refilled and now measured three inches in length and two and five-eighths inches in breadth, and projected from the surface so as to give the impression of a growth of the size of a small orange (Fig. 1). There was no bulging of the fontanels. The skin over the tumor was very thin and the mass was translucent. Operation was performed December 9, 1897. After etherization the baby was placed across a pillow, face down. Incision was made around the periphery of the tumor, and the sac was dissected out. The pedicle, which was a broad

one, was then divided, and the sacrum was found widely expanded on its posterior aspect, and in the vertebral body there was an opening one-half or three-eighths of an inch across, beneath which could be seen the cauda equina. The sac was brought together over the opening with continued catgut sutures, and the surfaces of the deep funnel-shaped wound were brought together with interrupted catgut sutures. The skin flaps were sutured with continuous catgut sutures. The patient bore the operation well. Special attention was given to the posture of the patient during convalescence. The patient was so placed in bed, with its face down and with pillows under the pelvis, that the wound should be at the highest point in the body, so that the urine and feces were drawn away from the dressing; and a special nurse was in attendance day and night on the case. The patient rested well, and nursed from its mother without disturbing the posture which it was desired to maintain. On the seventh day, the temperature having risen several degrees, the dressing was removed, the wound examined and found to be tense, owing to the accumulation of fluid beneath. On removing the superficial stitches, a large quantity of cerebro-spinal fluid escaped, which had broken through the deeper sutures and distended the deeper layers of the wound in all directions. No infection appeared to have taken place. The child continued to maintain the special posture, and the wound was dressed daily, and healed slowly by granulation, and it was discharged well, with the wound entirely healed, on January 5th. A slight leakage occurred occasionally of cerebro-spinal fluid from a small sinus which opened once or twice during the following nine months, but when last seen, at that period after the operation, the child was well and the wound was firmly healed. The success attending the efforts to maintain asepsis in this operation appears to have been due to the posture of the patient during the healing of the wound, which was carried out systematically for four weeks under the constant supervision of a special nurse. The photograph gives an idea of the method of maintaining this posture (Fig. II).

NEW GROWTHS OF THE BLADDER.[1]

BY EDWARD REYNOLDS, M.D., BOSTON.

THE following two cases are reported together on account of the similarity in the symptoms and lesions and of the interesting question raised by the similarity of the pathologist's report on them. The first case seems to me also interesting on account of the operative technique employed. This case is summarized from the report of it as originally drawn up.

CASE I. Mary H., six-para, appeared at my clinic at the Boston City Hospital on April 17, 1897. She was a fairly well-nourished woman, in fair health, complaining of no abnormal symptoms other than frequent and painful micturition. She urinated about once an hour in the daytime and from two to three times at night. There was slight tenderness on pressure over the situation of the right ureter. The uterus was slightly retroverted and movable. It was put in place and sustained by a pessary without any effect on the urinary symptoms. On April 24th a cystoscopic examination of the bladder made with the Kelly cystoscope in the knee-chest position showed a much-reddened mucous membrane just inside the right ureteral orifice and two small excoriated looking spots near the right ureter. All these spots were touched with a ten-per-cent. solution of formalin and the bladder washed out with a normal salt solution. Specimens obtained by catheterization of the ureters showed nothing more than a slight irritation of the right pelvis.

ANALYSIS OF URINE.—RIGHT URETER.

Date, April 19, 1897.
Amount received, 55 c. c.
Color, pale, turbid, specific gravity, 1.010.
Reaction acid. U (per cent.) 0.63 per cent.
Albumin 1-20 per cent.
Bile pigments absent.
Sugar absent.
Sediment: Many small caudate medium and large, round and irregular cells and a few squamous cells (ureter, bladder and pelvis). Considerable normal and abnormal blood. An occasional hyaline and granular cast with a little fat and normal blood adherent. Occasional small round cell, like renal. Some fibrin and an occasional leucocyte.

ANALYSIS OF URINE.—LEFT URETER.

Date, April 19, 1897.
Amount received, 36 c. c.
Color, bloody, specific gravity, 1.011.
Reaction acid. U (per cent.) 0.76 per cent.
Albumin 1-10 per cent.
Bile pigments absent.
Sugar absent.
Sediment: Chiefly normal blood. A few small caudate and large round and irregular cells. Occasional leucocyte. Rarely a granular cast seen. A few small round cells like renal.

She was put upon a regimen of eight tumblerfuls of water daily, a mainly nitrogenous diet, and a fifteenth of a grain of corrosive sublimate in pills three times daily. The local treatment was repeated at weekly intervals during the next month, the spots treated improving, but others always reappearing shortly. During the second month the solid nitrate of silver was substituted for the formalin applications, but the excoriations increased progressively, and began to appear raised above the surface of the bladder, being now localized between and above the two ureters and at a little distance from their orifices.

The ulcerated surfaces were lightly scraped with a curette, and the result submitted to the pathologist. Result: no tubercle bacilli were found. (The family history was good.) This examination was repeated several times, with negative results. Her progress during the next three months may be summarized by saying that the symptoms remained unaltered, that the mucous membrane around the ureters gradually resumed a normal appearance and the tenderness over the right ureter wholly disappeared, but the protrusion of the reddened and roughened patch between and above the two ureteral orifices steadily increased, in spite of frequent cauterizations with nitrate of silver and the occasional use of a dull curette upon it. Pain after passing urine grew more severe, but did not last long. The base of the protruding mass is slightly smaller than its summit. On September 23d she was etherized and elastic catheters placed in each ureter, each being inserted about two inches. The bladder was then separated from the uterus up to almost the level of the peritoneal reflexion by an incision similar to the anterior incision in vaginal hysterectomy, the patient being in Pean's modification of the Sims position. The cervix was then held well backward by a double tenaculum, a large cystoscope passed into the bladder, and under the guidance of the eye a knife was passed into the bladder and an incision made between the right ureteral orifice and the supposed new growth. This cut extended through the vesical mucous membrane and the submucous and muscular tissues, so that the point of the knife was visible in the freshly made space between the bladder and cervix. The edges of the incision were now spread apart with tenacula from the vaginal side, when with curved scissors the incision was easily carried around the whole new growth at a distance of about half a centimetre from it on each side and a little more than this above and below, the ureteral orifices thus lying just sufficiently outside the cut to permit of suture of the vesical walls. The vesico-vaginal fistula was then closed with an interrupted catgut suture, being brought together from side to side, and the anterior vaginal wall was reunited to the cervix by a similar running

[1] Read before the Obstetrical Society of Boston, October 18, 1898.

catgut suture. A self-retaining catheter was placed in position and several instruments of different curves, as well as one soft catheter, were tried during the next two days, but as all of them produced vesical tenesmus they were withdrawn and the patient was allowed to pass her own urine. The wound looked thoroughly well until the tenth day, when a very small opening was detected in the middle of the vaginal incision, and the leakage of a few drops of urine through this hole whenever the cervix was pulled backwards showed that there must be some failure of union in the vesical wound. This small fistula healed spontaneously in ten days, there never being enough leakage of urine to stain through a small amount of gauze placed in the vagina.

The patient was discharged from the hospital on October 16th feeling perfectly well, urinating about once in two and a half hours upon an average and never more than once at night. Micturition painless. The specimen was submitted to the pathologist and, very much to my surprise, was reported to contain nothing but connective tissues underlying an inflamed mucous membrane. Pathological diagnosis: localized chronic inflammation. A week later there was some pain before and after micturition, and a cystoscopic examination showed several small blood clots each about the size of a pin head apparently lying under the superficial layer of the mucous membrane along the line of the cicatrix, which was plainly visible in the median line of the bladder, between the ureteral orifices, both of which were normal looking and now about half a centimetre apart. Careful puncture of the epithelium with a cervical spear released each of these tiny clots and the symptoms cleared up. A week later she returned, stating that she was micturating somewhat more frequently and suffering from a dragging pain in the pelvis. On vaginal examination on this day, October 30th, the cervix was much congested, the uterus in position, but low in the pelvis and considerably enlarged. (The pessary had been omitted as unnecessary several months before.) On questioning the patient she said she should have been unwell just after the operation (nearly six weeks before) but that menstruation failed to appear. Diagnosis: probable pregnancy at two months. Pessary adjusted. The course of the case during the next ten months may be summarized as follows: The dragging pain was relieved by the pessary, the diagnosis of pregnancy proved to be correct and the pessary was removed when the patient was about four months along. During the last half of her pregnancy she was pretty constantly troubled by a vesical pain, which was apparently due to the traction of the enlarging uterus upon the base of her bladder, but this disappeared with the birth of the child, and she was entirely well for three months after the birth of her child, at the end of which time she came to my office complaining of occasional pain in the neighborhood of the symphysis pubis and a little more frequency of micturition than she thought normal, that is, usually once at night and occasionally not at all, and from two and a half to three hours in the daytime. On inspection of the bladder a few reddened spots were detected in the inter-ureteral region. Deep cauterizing with nitrate of silver, and the use of a pessary to counteract the effect of a laceration of the perineum received at her last labor have now wholly relieved her symptoms, and the woman's future seems to me to depend upon two features, the correctness of the pathologist's report, and on her own energy and interest in her condition. If there was nothing in the case except chronic inflammation, and the patient will persist in following up the treatment sufficiently long, I think that she will continue entirely well.

CASE II. Mrs. G., married, thirty-seven years old, was referred to my wards in the Boston City Hospital, July 9, 1898, from the medical wards of Dr. Henry Jackson. For two years she had suffered from more or less pain in the right side, and from painful and frequent micturition, frequently being obliged to rise five or six times at night. She had in the past had hematuria. On examination of the urine the alkaline phosphates were greatly diminished, the chemical analysis was otherwise normal, the sediment consisted of pus and abnormal bladder cells. She had several times passed stones the size of a pea, and many times gravel. On the 13th of July I made a visual inspection of her bladder; the mucous membrane was generally normal, but the inter-ureteral space was red, rough, and edematous; on the right edge of this inflamed space was an irregular, whitish body, apparently occupying the site of the right ureteral orifice. On touching it with a sound, it was plainly a concretion of very soft consistency, and I thought it probably a phosphatic deposit over the lower end of a small stone caught in the ureteral orifice. I was much puzzled at being unable to feel it from the vagina on bimanual examination. On July 17th the patient was etherized, and I was surprised to find that I was still unable to find the site of the stone by touch. Believing that a portion of it would be found within the ureter, I made an oblique cut through the vaginal wall, as nearly as possible over the site of the ureter, hoping then to be able to find the stone by touch, slit up the ureter upon it, and thus free the stone; still failing, however, to detect the stone by touch, I was obliged to open the bladder, which I did through the same cut. The incision proved to have been about one-quarter of an inch inside the stone, which was easily seen on inverting the wall of the bladder through the cut with a pair of forceps. On taking hold of the stone with forceps and attempting to withdraw it from the ureter, it crumbled away and proved to be a thin shell of phosphatic deposit encrusting the surface of a small pedunculated growth, which sprang from the edge of the right ureteral orifice. It was a solid, fleshy little growth with a wart-like surface, and I thought it safest to the patient to excise its base. I accordingly removed a portion of the bladder wall of about the size of a ten-cent piece, necessarily including the lower end of the right ureter. I had intended at once to close the resulting fistula, but the cut edge of the bladder oozed so profusely that it was impossible for me to place the sutures with any accuracy, and as I was afraid of closing the ureter by a misplaced stitch, I thought it better to postpone the closure to a later date. A few days later the edges of the fistula were unclean looking, probably from infection from unclean urine, and this condition was soon complicated by the appearance of phosphatic deposits over the cut edges.

The patient was treated at first by various diuretics and finally by urotropin, seven and one-half grains three times a day. Under this drug the concretion disappeared rapidly and the urine cleared up.

On September 9th I closed the fistula; the ureter could be seen spouting in the edge of the wound at its upper angle, and I found much difficulty in closing this part of the fistula satisfactorily. Not being willing to denude across the end of the ureter, I finally accomplished it by dissecting the tissues of the vaginal wall off the bladder over a space about one centimetre and a half long and one centimetre broad, the lower edge of this space being opposite the cut end of the ureter, and the remainder of it extending upward along the course of the ureter. This denudation was brought together by transverse sutures, and when these were tightened the orifice of the ureter was found to have been turned up into the bladder.

The remainder of the fistula was then easily brought together in the ordinary manner. The wound healed throughout and the patient was entirely comfortable until September 22d, when she had an attack of pain before, during, and after micturition, which lasted until the 24th, when a visual inspection of the bladder disclosed the existence of a small edematous spot in the mucous membrane just below the lower end of the cicatrix. This was lightly cauterized with solid nitrate of silver, and within forty-eight hours the symptoms disappeared. She has been kept on urotropin and has had no frequency or pain with micturition since.

The specimen was sent to Dr. F. B. Mallory, who returned the following report: "The specimen consists of a small bit of tissue about two and one-half by two by one centimetre, opaque, blood-stained, and covered in several spots with small, grayish-white, rough, caseous-like bodies. On

microscopic examination the epithelium was gone and replaced by a thin slough of necrotic tissue infiltrated with leucocytes. Beneath this was an extensive infiltration of plasma cells and a few leucocytes. Blood-vessels are congested and altered; blood pigment is scattered through the tissues. In places the infiltration extends into the muscular layer.

Diagnosis. — Chronic ulceration; no evidence of malignancy or of tuberculosis.

It will be noticed that in both cases the pathologist's report fails to notice the small elevated spot resembling a new growth which was the most prominent feature of the disease on clinical inspection; and especially so in the second, in which it was distinctly pedunculated. It is possible that the protuberance may have been due to the squeezing up into prominence of a bit of inflamed tissue by the muscular contractions of trabeculæ in the bladder wall, which would naturally disappear before the specimen reached the pathologist. In each case the clinical appearance was such as to make me feel hopeless of relieving the woman by minor treatment, which had indeed been tried most faithfully and without success in the first case.

A point of considerable interest lies in the form of operation adopted in the first case. The technique was extremely easy, and it was interesting to see how readily and safely a new growth situated upon the posterior wall of the bladder at a point too high to be readily accessible from the vagina could be reached by this incision. Until one has had occasion to do a good deal of surgery in this region, he is not likely to fully realize the amount of loose connective tissue which lies between the posterior vesical and the anterior vaginal wall, the ease with which these slide upon each other, and the extent to which the cervix uteri can be moved about by a pair of double hooks, without in the least affecting the position of the contiguous portion of the bladder. Under these anatomical conditions it is extremely easy to free the anterior vaginal wall from the bladder, and any operator accustomed to plastic work can readily appreciate the advantage of having the line of union in the bladder run at one angle, and in the anterior vaginal wall behind it at another. There is a still greater advantage in the resection of the diseased portion of the bladder without the removal of the muscular and fascial layers of the anterior vaginal wall which underlies and supports its base. I should have adopted this operation for the second case here described (as I mean to for all future excisions of the base of the bladder) had it not been for my erroneous diagnosis of a stone caught in the mouth of the ureter, which led me to make the ureteral incision.

FIBROMA OF THE VULVA.[1]

BY MALCOLM STORER, M.D., BOSTON.

THE comparative infrequency of tumors of the character and size of the one I have here renders it desirable that such cases should be recorded. In 420 primary neoplasms of the external genitals in women Williams found only 17 fibromata, or only about one in 600 of all the new growths in women he tabulated.

E. M., white, age forty-one years, the mother of three children, first noticed a few months after the birth of her youngest child, nine years ago, a small tumor of the left labium majus. At first it protruded "like a pipe stem," and was, according to her, of uniform consistency, but three years later, when it was about an inch long, its lowest part began to become indurated. While for some years she had had pelvic symptoms, they were probably due to an endometritis rather than to the tumor, which troubled her only by its weight and the fact that she sometimes found that she was sitting upon it. There was always a marked increase in the size of the tumor at each menstruation, it doubling at least, the increase beginning a week before the flow and reaching its maximum on the first day, and then gradually subsiding until the normal was reached in about a week, the flow itself lasting only five days. At these times the tumefaction was generally sufficient to cause the appearance of a number of painless serous blisters the size of the thumb-nail.

Upon examination she was found to have this tumor hanging from the outer side of the left labium majus, just above the level of the clitoris, by a pedicle 20 centimetres in length and four centimetres in circumference. The tumor itself was pear-shaped, very edematous, and much larger than at present, its greatest circumference being about 28 centimetres. It was covered with fairly smooth non-adherent skin above, while below the skin was thickened and puckered in around an ulceration 2 centimetres in diameter at the most dependent point. This ulcer had existed for a number of months at least, but was a source of annoyance only from the necessity of keeping it clean. The tumor was much harder below than above, but not nodular. It was not sensitive, nor was traction upon the pedicle painful. The pedicle contained no palpable vessels, nor could it be followed into the inguinal canal. The tumor was pronounced by Dr. A. K. Stone to be a fibroma.

The most common seat of fibromata of the vulva is one or the other labium majus, therein differing from the malignant growths, which are more apt to arise in the labia minora or from the clitoris. It has been claimed that vulvar tumors are more often found upon the left than upon the right side, as are also, it is said, cysts of Bartholin's gland, but this does not seem borne out by the cases that I have been able to collect.

The fibrous and fibromyomatous tumors that are seen in this region may have their origin in two main sources: (1) the subcutaneous connective tissue, and (2) the connective tissue and terminal muscular fibres of the round ligament, and possibly in muscular fibres in the skin, while, as curiosities, may be mentioned tumors arising in (*a*) the pelvic fascia and periosteum of the bony pelvis, (*b*) the recto-vaginal septum, and (*c*) the uterus. Largeau, for instance, removed a cystic fibromyoma of seventy-five pounds' weight, the pedicle of which, apparently attached to the left labium majus, was found to run far back into the pelvis, presumably to the uterus, although the operator did not care to trace it to its origin.

As would be expected, fibromata of the vulva are more common in the colored race than in the white. Thus Ramsey saw twelve cases in negresses to three in white women. They generally first appear in young adult life, that is, at the period of a woman's greatest sexual vigor and activity. There has often been noted the increase in size seen in my case during menstruation and pregnancy, with subsequent decrease with the ebb of the menstrual tide. This vascular menstrual increase is, perhaps, more marked in lipomata and myomata than in the more densely constituted fibromata. Occasionally a case is seen in which there is a permanent increase in size following unwonted activity of the sexual system, as in that of Gillette, in

[1] Read before the Obstetrical Society of Boston, October 18, 1898.

which a girl who had had for fifteen years a trivial tumor in one labium found that, upon her becoming pregnant for the first time, it grew rapidly, until, when she was eight months advanced, it was the size of the tumor I have shown to-night. Such rapid growth is, however, most exceptional, and always should excite suspicion of malignant degeneration.

From their situation, and the extreme elasticity of the tissues in which they are imbedded, these tumors quickly become pedunculated, a tendency perhaps more marked in tumors arising in the subcutaneous connective tissue than in the more firmly attached fibres of the round ligament. While almost always growth is outwards, a case of Kirchhoff is of interest. For some years a girl of eighteen had felt, on lifting anything, as if a body were trying to force itself out from her vagina. One day on lifting a kettle she felt a pain in the genitals, sharp enough to make her faint. Upon examination there was found, dependent to the middle of her thigh, a fibroma arising from the inner side of the right labium majus, while the hymen showed that it had been recently torn to pieces by the extrusion of this tumor from the vagina.

Should the tumor tend to expand laterally instead of becoming pedunculated, it may press upon or displace the urethra or the meatus or grow at the expense of the vagina, preventing coitus or even becoming a positive bar to parturition (Zielewicz).

Pain is apt to be conspicuous by its absence, and generally it is only inconvenience that leads to surgical treatment. These tumors, however, are naturally much exposed to injury, and an injury is apt to be followed by a low type of ulceration, as in my case, the discomfort of which is often the cause that leads to their removal.

The only treatment is surgical. If the tumor has a thin pedicle nothing can be simpler than its removal. In cases, however, in which the pedicle is of large size, greater care must be taken owing to the sometimes immense vascularity. In a case reported by H. R. Storer, there having been an excessive hemorrhage from an exploratory incision into the mass of the very large tumor, the pedicle was found to consist chiefly of a "congeries of veins and arteries — some of the latter being of immense size, one fully as large as the femoral." Eichholz has reported a similar cavernous fibroid, in which some of the vessels of the pedicle were 12 millimetres in diameter. In such cases hemorrhage can generally be controlled by the assistant's fingers, but it may be necessary to resort to a temporary elastic ligature, with possible transfixion of the pedicle. Cases that are not pedunculated may present greater difficulties. Removal of ramifications of the tumor may involve danger of injury to the bulb and troublesome hemorrhage, and it may not be wise to follow up too enthusiastically the pedicle of a tumor whose origin is deep in the pelvis or inside the inguinal ring, especially when the patient has, at most, only slight inconvenience from its presence. On the other hand, the possibilities of malignant degeneration must not be forgotten.

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MALARIA AS SEEN AT MONTAUK.

BY F. J. COTTON, M.D., BOSTON.

In considering the types of malaria seen in the hospital at Camp Wikoff it may be well to note that all the many cases there had one point in common — one point of difference from any ordinary series of malarial infections — they were all old cases; almost without exception the fever had been contracted in the vicinity of Santiago.

This fact probably explains why the remittent malarial fevers were so few, and why the course of the disease was so inconstant.

It was curiously difficult to get accurate histories from the men: they were usually as laconic on the subject of illness as on that of fighting. It was, therefore, hard to get the precise data, but while a few cases started as early as July 7th or 8th, the majority of the men seem to have taken their infection seriously only after the strain and excitement were over, — from July 19th on, and many were actually well up to this time. Of those at Montauk who had malaria at all, few had remained well through July; a great many dated their first attack as early as the 20th.

Most of them had had two or more attacks in Cuba, usually lasting but a few days, and recurring at varying intervals from a week upward. In some cases there was a pretty clear history of a longer continued remittent malaria, with or without subsequent attacks. The patients had nearly all had quinine, often in heavy doses, but very few had been regular or persistent in its use.

The majority of cases were of course convalescents, often suffering more from exhaustion and privation than from the effects of the malaria. They were emaciated, weak and anemic, many complaining especially of lame back and legs, loss of appetite, or dizziness, but with a few days of rest, food, quinine and iron they picked up rapidly, and were soon clamoring for furloughs.

Some few cases were so intensely anemic as to be in really serious condition, and required longer treatment for the anemia. Many had diarrheas, whether specifically malarial or simply camp diarrhea it was usually impossible to say; others had dysentery, some of them, at least, from amebæ.[1] The physical examination of these convalescents showed frequent functional heart murmurs, occasionally with slight dilatation, and sometimes an enlarged spleen, rarely, however, of any great size. They were apt to show slight irregularities of temperature, of no fixed type. The blood examination showed a varying grade of secondary anemia, occasionally some pigment, but no plasmodia.

Some few cases, however, apparently convalescent and otherwise not notable, did have parasites in the blood, for example:

Case I. Began in July with chills and fever. After much quinine, the fever became irregular and abated. He had a second attack, of short duration. A week ago two

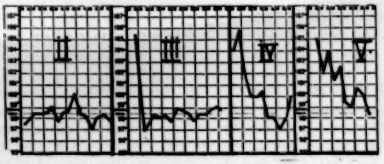
[1] Amebæ dysenteriæ were found in the stools of a number of cases in the hospital, but most of the presumably amebic cases were convalescent when first seen.

or three chills. On entrance, nothing of note beyond a moderate anemia; felt as well as at any time since July. While in the ward no temperature worth mentioning, no chills. The blood showed chloranemia, pigmented leucocytes, a few crescentic bodies.

CASE II. Had irregular chills and fever in Cuba for four weeks; since then on his feet, but not on duty. Now feeling better. Emaciated, but without much pallor. No chills or fever; no symptoms except occasional nausea and palpitation. The blood showed slight anemia; a few crescents and some younger forms (intracellular rings).

These cases are probably rather cases of chronic than of recurrent infection. None of the cases of this sort showed other than the estivo-autumnal form of parasite.

In many instances patients previously convalescent developed active symptoms of malaria as a result of privation, of sea-sickness, or of digestive disturbance on the transports, or as a result of the over-exertion of landing or pitching camp. They came in complaining of chills and fever, or only of headache and backache, or perhaps dizziness. They were apt to show curious temperature charts, usually without any approach to a fixed type, and were notable only in that they usually improved very rapidly under treatment. Such cases were frequent enough to demonstrate definitely the connection of the attack with depressing influences,



especially physical over-exertion. In a very few of these cases the tertian parasite was found, more often the estivo-autumnal, while in some, curiously enough, the blood examination showed only anemia and pigmented leucocytes, without any plasmodia. The cases without parasites were in every way comparable with those where they were present, — in the negative physical examination, in symptoms and in course. Whether they represent the reaction to exhaustion of a malarial cachexia without active organisms, or were simply infections in which the plasmodia were in the viscera only, is hard to say. Actual proof seems impossible, for such cases do not, of course, come to autopsy.

CASE III (see chart) is an example of the first class. The blood report was: Considerable chloranemia, a few intracellular "signet-rings."

CASE IV gave a history of two or three short attacks of chills and fever in Cuba; since then in fair condition till the day before entrance. That evening a moderate diarrhea and a chill. On day of entrance no diarrhea; in afternoon chilly; temperature 105.8°. Physical examination absolutely negative. Blood examination showed no plasmodia.

Apart from this class of cases, the malarias simply recurred after an indefinite interval from the last seizure. Almost all the described types of attack were seen. The great majority had estivo-autumnal infection; tertian infection was not infrequent; true quartan fever was not seen. Those patients who showed the tertian parasite were from the same regiments as those with the estivo-autumnal, and, so far as could be made out, had had similar exposure. There were very few cases, however, when the two parasites occurred in the same case. The pure tertian infections [2] were both single and double, the double infection with daily chills being rather more common. Occasional cases without chills were seen.

CASE V. Never had chills in previous attacks in Cuba, nor did he have any while in the ward. The blood examination showed many fully-developed tertian organisms.

It is noteworthy that nearly all the really large spleens seen belonged to these long-continued tertian cases, and that many of them showed an anemia much more intense than was usual with the estivo-autumnal cases.

Two cases, both tertian, were brought into the wards one very hot day (September 1st) as sunstroke cases. In both cases it seemed as if the effect of the heat had been added to that of a malarial infection already running.

One of these cases was really only a heat prostration on top of a tertian attack that had been in full course for a week; the temperature was 106°, but he showed none of the signs of true insolation.

The other case (Case VI) imitated more closely a simple sunstroke. He was found unconscious outside the camp and brought in semi-comatose, livid, with a temperature of 106°, a pulse of 110. An iced bath restored him to consciousness, and brought the temperature to 103°. From this time on the case was one of ordinary double tertian malaria, and the day after the "sunstroke" full-grown tertian organisms were found in the blood. He gave a history of four or five attacks with chills in Cuba, was ill on the transport, and had been ailing for three or four days, but was on his way to report for a furlough when he collapsed in the heat.

The estivo-autumnal recurrents which formed the bulk of all the cases were almost hopelessly inconstant in type. There were cases practically without fever, without symptoms (Cases I and II). Other cases had only an irregular temperature as evidence of infection. The majority, however, had chills, often severe, usually very irregular, not infrequently appearing in one paroxysm, absent the next. The length of the chill and the duration of the temperature varied indefinitely. The same may be said of the recurrence of the paroxysms; the only approach to regularity was in those cases with a daily chill, and even in these there was no regular hour of onset. The duration of the attack in these cases was usually not over four days, the interval between attacks inconstant, with a tendency to recur after about eight days.

Occasionally attacks of headache and backache or nausea replaced the ordinary form of paroxysm; not infrequently a paroxysm indicated by a considerable rise of temperature would pass entirely unnoticed by the patient, or the initial chill occurred without any subsequent sensation of fever. This happened even with temperatures of 105° or 106°; with less grades of fever, lack of subjective feeling of heat seemed the rule rather than the exception.

There were a few cases of collapse in the paroxysm. In these cases the collapse was not readily explainable either on account of exceptional weakness of the pa-

[2] That is, those due to the "mild tertian" parasite; no distinction of the so-called "malignant tertian" variety of the estivo-autumnal parasite was attempted.

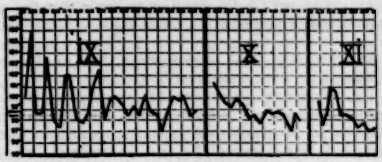
tient, or of exceptional severity in the general course of the infection, so far as one might judge.

Case VIII went into profound collapse in the sweating stage of a paroxysm, and could be brought around only by very considerable subcutaneous stimulation with strychnine and whiskey. His blood a couple of hours later showed only a very few small, intracorpuscular rings and one older intracellular form. He had no further paroxysms, and five days later applied for a furlough, in very fair condition.

Case IX, already exhausted from a long-continued dysentery, collapsed in a paroxysm the day of entrance (he had had no sign of malaria for weeks before). His pulse ran up to 160, weak and running; the temperature was 105.8°. He, too, responded to strychnine, whiskey and digitalis, and had no repetition of the collapse. The blood examination on two occasions showed nothing more than a few crescents in the circulating blood.

Some thirty hours after a chill with collapse, began to have another chill, but lapsed into a coma which lasted about three hours, with a temperature of 102° to 103.5°. Quinine was given (ten grains) subcutaneously, but the recovery of consciousness was too prompt to be attributed to the quinine, and apparently was spontaneous.

Cases of coma were not uncommon; some were brought in in this condition, others quietly went into coma in the ward in spite of ordinary quinine dosage. The coma seems, sometimes at least, to develop as the equivalent of a paroxysm. In one case[3] in the hospi-



tal each paroxysm brought a short period of coma, which passed away spontaneously.

In some of the cases of coma there was a history of recent chills, or of a chill ushering in the coma, as in the last case, but two cases had had no chills at any time, and one had no clear history of any malarial attacks at all, though crescents were found in his blood.

In all, eight cases of coma came under my personal observation, all closely similar in appearance. The patients lay quite still with the limbs quiet (in contrast to the restless, wandering "picking" of typhoids brought in in a not dissimilar coma); there were no muscular twitchings,[4] no pareses, no loss of muscular tonus. The breathing was regular, in some cases perfectly quiet, in others deep and somewhat stertorous; the pulse, at least in the early stages, not rapid, regular and of good quality. The eyes were partly or fully open, motionless or nearly so, the pupils approximately normal and reacting to light. The patient could often be roused to give his name, perhaps his regiment, — rarely more. A prick of a pin was always responded to, often in lively fashion; the usual reflexes showed nothing abnormal. Rectum and bladder were emptied involuntarily, usually at intervals only; retention of urine was in no case noted, though watched for. The subsidence of the attack was a gradual, often relatively rapid, awakening, without any sign of delirium or other mental disturbance.

[3] Under the care of Dr. Seabury W. Allen.

[4] In one case, however, there was a persistent champing of the jaws, without other muscular action.

A typical case is appended:

Case X. In July, and two or three times afterward in Cuba, had diarrhœa and some fever, no chills. The week before leaving Cuba, chills daily. On the transport, six chills; then better. On landing, one chill; then irregular fever. On day of entrance had a chill. Brought in semi-comatose, supposed to be moribund. Pulse was poor, but responded to stimulation. Temperature 101°; some sweating. Rallied through the night and by morning was in fair condition, quiet and fully conscious. Blood taken during coma showed only crescents and intense anemia. Recovery uneventful. No chills while in the ward.

The next case is atypical only in the occurrence of convulsions.

Case XI. No clear history of malaria to be obtained at any time, despite repeated questioning. Had suffered much from the heat, however. Four days before, while on the transport, he had been ill, but recollects neither chills nor fever. After landing he recalls only that he was "played out altogether."

He was brought in in coma; resisted examination, but could not be roused to give his name; was able to swallow. Quinine given, 15 grains every four hours. Lay with eyes open; perfectly quiet save when touched. The pulse was of good quality and not rapid. Examination of the blood showed a good many crescents, a few intracellular rings, little pigment. The coma continued through the day; toward evening the pulse was less good, and strychnine was given, one-sixtieth grain every four hours. The pulse rallied, but, despite the large dosage of quinine, there was no change in the coma. The next morning there occurred a tetanic convulsion of moderate intensity, followed by several others less severe; these lasted but a short time, and the patient was again quiet. The strychnine was, of course, promptly omitted. Eight hours later fresh convulsions appeared, but of wholly different type. The patient writhed about in a quite irregular fashion, with all muscles tense, but with wild gyrations of arms and legs. There were no clonic contractions. The eyes, throughout the half hour that the attack lasted, deviated to the right, and the head was rigidly retracted and turned to the right. This attack passed off without doing obvious harm, but without change in the coma. Quinine was next given subcutaneously in 10-grain dose without obvious effect. In the evening a subcutaneous injection of salt solution was given, in the amount of one litre. Not long after this the patient began to improve. Next morning, some sixty hours after entrance, he woke to full consciousness. For a day longer there was a trace left of the retraction of the head, and the neck and upper back were stiff and somewhat tender. This, however, passed off, and two days later he was up and apparently well. There were no further paroxysms.

It is possible that the first convulsions were due to strychnine, though the total given was but one-fifteenth of a grain, but the second set would seem to have been due, probably, to the malarial infection.

In regard to these coma cases, it may be said that administration of quinine by mouth, even when the patient can swallow readily, seems of little use, while the subcutaneous injection of the soluble salts of quinine seemed of definite effect in the majority of cases. Subcutaneous injection of salt solution seemed, in the few cases where it was tried, to have some value.

There were relatively very few cases of continued malarial fevers. One patient ran a temperature of

100–102½°, and lay in a typical typhoid condition for days. He had no abdominal symptoms beyond a slight diarrhea. Rose spots were absent; the spleen was moderately enlarged; he had one attack of epistaxis. The only thing of note was an intense anemia, obviously referable to the previous malarial attacks of which he gave a history. The examination of the blood on two occasions showed no plasmodia, though there was marked anemia and considerable pigment.

This case was called typhoid until, after six days (during which some quinine was given), the temperature abruptly fell from 101° to normal and stayed there. With this change his stupor very suddenly disappeared and within twenty-four hours he seemed, except for the anemia, perfectly well. There was no recurrence of symptoms while he remained in the hospital. In a second case of almost identical course the recovery was less abrupt, but here the plasmodia were found present in the blood as well as the pigment and chlor-anemia. Both these cases are apparently malarial; in neither case was the Widal test performed, but clinically there was no reason to assume a mixed infection. In other cases, where the mental condition, the enlarged spleen, moderate abdominal tenderness and the slight bronchitis strongly suggested typhoid, the temperature was really intermittent, the fever of short course, and the estivo-autumnal parasites demonstrated. These cases had no chills.

In a number of cases with irregular fever, where there was a history of malaria, the blood examination showed anemia and pigment but no organisms, while the clinical diagnosis of the typhoid was usually confirmed later by a positive Widal test. Probably in one sense many of these were mixed infections, but during the course of the typhoid there were no plasmodia in the blood, nor did the latent malaria show any influence on the fever curve. In a very few of these cases, during the convalescence, after the normal temperature had been reached, there was a flare-up of temperature, with or without chills, and the plasmodia previously absent reappeared in the blood. Mixed infections, typho-malaria in the stricter sense, where both processes are active at the same time, were not seen in this series of cases.

The above cases are from a total of about three hundred, which were under my care in the General Hospital at Camp Wikoff from the 21st of August till early in October. Of this total, probably two hundred had, or had had, malaria, but many were fully convalescent, while many were in the wards too short a time for close observation. Detailed notes, charts, etc., are at hand for only seventy of the malarial cases; these were, of course, mainly the severer cases.

For the blood examinations cited, for Widal tests, etc., I am indebted to Dr. James Ewing, of New York, whose work as hematologist to the hospital, carried out under considerable difficulties, was of the greatest practical value.

FORT MONROE'S MILITARY HOSPITAL.—Fort Monroe will soon be one of the most important military hospital stations in the country. The hospital is named the Josiah Simpson Hospital, and has, during the past four months, accommodated 1,500 sick and wounded soldiers, of whom about 500 still remain. It is now proposed to increase the capacity of the hospital to 2,500 beds by the erection of five additional buildings. — *Medical News.*

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

REGULAR Meeting, October 18, 1898, DR. DAVENPORT in the chair.

DR. J. C. WARREN reported

TWO CASES OF SPINA BIFIDA.[1]

DR. W. F. WHITNEY: There are some cases of hydrocephalus which arise from a closure of the passage to the fourth ventricle, and therefore it by no means follows that the hydrocephalus was the result of Dr. Warren's operation.

DR. E. REYNOLDS, as illustrating the value of these operations, spoke of a well-known case in which a child, cured of spina bifida, lived to become a valued physician. The method of treating the wound used by Dr. Warren reminded him of his own procedure in symphyseotomies, which now he limited to septic cases, reserving clean ones for Cæsarean section. The problem being to keep a clean wound clean in spite of the proximity of a septic discharge, he was in the habit of using three separate dressings — one to the vulva, one to the symphyseotomy wound, and one intermediate to the two — thus avoiding all chance of contaminating the dressing of the symphyseotomy wound.

DR. WARREN: I did not wish to imply that the operation was of necessity the cause of the hydrocephalus in my case, but it is just as well in giving a prognosis to the parents of these cases to warn them of the possibility of the development of it.

DR. WHITNEY, in answer to questions, said that hydrocephalus is apt to be associated with spina bifida: that where one malformation exists another is often seen, but that it cannot be said beforehand in any given case that it will develop. It is not probable that an operation would make it more likely to come on. He was unable to state whether the tension in the sac of a spina bifida is apt to be greater than that in the normal canal. Clinically, as Dr. Warren said, these sacs are not always very tense.

DR. SINCLAIR asked as to the statistics of operations for spina bifida.

DR. WARREN said that until recent years they had been very bad, the great danger coming from sepsis.

DR. J. G. BLAKE spoke of a case he had seen years ago treated by ligature, which died, as was then the rule.

DR. WARREN spoke of an unsuccessful attempt of his own to cure a case by means of a subcutaneous ligature. The best treatment was a clean incision, laying the tissues open by layers, as one would when operating for hernia, combined with postural after-treatment.

DR. M. STORER reported

A CASE OF FIBROMA OF THE VULVA.[2]

DR. SINCLAIR had seen only one case at all like this and that proved to be a sarcoma. He remembered a case of a transparent sac the size of a hen's egg arising just above the clitoris by a thin pedicle of doubtful origin.

DR. WARREN was reminded by the tumor in Dr. Storer's case being an inconvenience when the patient sat down of a case in which he recently removed too

[1] See page 598 of the Journal.
[2] See page 596 of the Journal.

abundant nymphæ because the patient found them interfering with bicycle riding.

DR. EDWARD REYNOLDS reported

TWO CASES OF OPERATION FOR THE REMOVAL OF NEW GROWTHS FROM THE BLADDER.[1]

DR. HIGGINS said that he had seen the first case before operation, and that then there was not the slightest doubt as to the correctness of the clinical diagnosis that there was a small projecting growth present.

DR. M. H. RICHARDSON reported a case of

NEPHRECTOMY FOR RENAL CALCULUS.

I show here a kidney which I removed from a man of fifty-two years. The patient, a farmer, first noticed pain in the right kidney while riding a "kicking machine" (a machine for turning hay). The movement of the machine hurt him a good deal. He had always felt weak in the right kidney. There has been a loss of twenty-five pounds in weight. He has passed blood in the urine for a long time — apparently nothing but pure blood.

No consumption or cancer in the family.

The chief symptoms were pain in the right kidney, hematuria and loss of weight.

On examination I found a large mass occupying the region of the right kidney. Posteriorly it was very tender; in front lobulated and fluctuating. The dulness of the tumor was continuous with that of the liver. The man's general condition was fair. There was very marked emaciation. The pulse was 120.

In this case I was inclined to the opinion that this was a case of cancer of the kidney. I nevertheless advised operation, hoping that if a malignant tumor was found it would be confined to the kidney, or, if the trouble was not malignant, it might be some curable thing.

Operation was performed this morning at St. Margaret's with the assistance of Dr. Jones and Miss Durling. An incision was made parallel to the obliquus externus, from a point two inches above the pubes to a point within two inches of the ribs on the right side. The incision was parallel to Poupart's ligament and an inch and a half from it. When the incision was large enough to admit the hand, careful examination was made of the left kidney, of the tumor, of the liver and of the stomach. The left kidney felt normal in size and consistency. In the region of the right kidney there was a large, lobulated, fluctuating tumor which extended from the level of the crest of the ilium up to the diaphragm. It was in contact with the liver, gall-bladder, the hepatic flexure of the colon, the pylorus and the inferior cava. The tumor evidently contained large calculi. The lower portion was cystic, and in the cyst could be felt numerous stones of various sizes. At the outer portion there was a large stone directly under the capsule. The tumor was separated without difficulty. The ureter and vessels were tied and the kidney removed. Several small masses which had been felt beforehand in close relation to the inferior cava were now seen to be independent of the kidney. They had the appearance of chronic adenitis. The masses were grayish, in places translucent, and in places cheesy; they were encapsulated and friable. I removed one for examination; the others were so intimately connected with the inferior cava and the abdominal aorta that it was deemed best not to attempt their extirpation. Moreover, if malignant, they could not have been entirely removed; if not malignant, they were not likely to cause further trouble. I attempted to enucleate one of them, which was lying directly under the inferior cava, but the mass was so intimately connected with this vein that the attempt was abandoned. Hemorrhage was slight.

The patient came out of the operation well. The abdomen was closed except for a small gauze drain.

This case is interesting because, in spite of the grave prognosis, the disease proved to be essentially benign. I hesitated a long time before advising operation. I have similar cases under observation to-day — cases in which the prognosis as to the possibility of relief seems quite as unfavorable. Cases of this kind encourage one to explore in all conditions in which the physical examination does not demonstrate the presence of a hopeless malignant infiltration.

DR. W. H. PRESCOTT spoke of an autopsy he had performed at which he had found both kidneys in nearly as bad a condition as in Dr. Richardson's case, yet the patient had apparently been perfectly well until two months before her death.

DR. WARREN reported a case of

SUDDEN DEATH AFTER OVARIOTOMY.

The patient was forty-two years old, married; catamenia appeared at the age of twelve, regular and not painful; had been married twenty-four years, had had five children and no miscarriages; catamenia were still regular — and said she had had no other illnesses. For the past three years she has noticed that she has been growing large in the abdomen. This growth has taken place gradually. Micturition has been frequent for several months, and the bowels seemed constipated. For some months she has been obliged to sit up in bed or on a chair to breathe, and is unable to breathe with ease if lying down. Abdomen is very large and prominent and tense, flat to percussion, and there is a wave of transmission as of fluid contents. This wave, however, is not equally marked in all directions, — giving the impression of the existence of a multilocular cyst. On vaginal examination, the uterus is found to be movable and the cervix soft. Operation was performed on October 13, 1898. An incision was made on the median line below the umbilicus about four inches in length. The cyst wall being exposed, the contents were evacuated through a large canula or tube, about twenty pints being collected in this way. The solid contents of the cyst were then drawn out through the wound. The pedicle, which was on the left side, was quickly tied and divided. After wiping the abdomen dry with gauze sweeps the abdominal incision was closed by about eight silkworm-gut sutures. As the last were about to be tied the patient suddenly died. All efforts at resuscitation, such as artificial respiration, the use of oxygen, and tracheotomy, proved useless. At the autopsy, the heart and other organs were found to be in a normal condition. This case is reported as an example of heart failure, due not to anæsthesia or to the shock of the operation, but to the inability of the heart to obtain sufficient blood, owing to the great hyperemia of the abdominal viscera caused by the sudden removal of pressure.

DR. SINCLAIR had seen a somewhat similar case where a woman nearly died after the tapping and removal of a small amount of fluid from an ovarian cyst.

[1] See page 594 of the Journal.

DR. WARREN also reported a case of tumor of which the exact nature could be told only by microscopical examination. The patient was fifty-one years of age, married, and had had ten children. Catamenia were regular until May, 1898. General health was always excellent. The patient first noticed an abdominal tumor in May, 1898, which has been increasing rapidly in size ever since. She has lost little weight during this time. There was some edema of the legs and shortness of breath for five or six weeks. Has menstruated only three times since May. On examination, the patient was found to be a very strong, well-developed woman. Abdomen is enormously enlarged, and integuments are smooth and tense. Percussion waves were felt over limited areas, but not directly through from side to side. Tympany confined to the epigastrium. Cervix was found high in the vagina. The uterus was movable. Operation was performed October 14th. An incision four inches long was made below the umbilicus which exposed the walls of the tumor. These were found to be so thin and the cysts so numerous that it was impossible to evacuate their contents by a canula. The cyst walls, therefore, were punctured by the finger, adhesions, which were numerous on the anterior and upper abdominal walls, were ruptured, and the tumor in this way slowly and gradually extracted from the abdominal cavity after the abdominal incision had been doubled in length. As the tumor so surrounded and involved the uterus as to render it impossible to find a pedicle, it was found necessary to perform hysterectomy. The precaution was taken in this case to raise the foot of the operating-table slightly, and to preserve pressure upon the epigastric region after the removal of the tumor and during the suturing of the abdominal walls. No untoward symptoms occurred during the operation or afterwards, and the patient made an uninterrupted recovery, and left the hospital about three weeks later.

DR. WHITNEY described the growth as follows:

"The growth removed by Dr. Warren consisted of a fibrous and cystic mass with the uterus detached. The mass measured about 27 centimetres in diameter and consisted of very numerous cystic cavities, with very thin walls, which had been exteriorly ruptured, showing a very irregularly trabeculated surface on the inside. Besides these cysts there was a much firmer growth, looking like soft, edematous, fibrous tissue, throughout which small cysts were to be distinguished. At the upper part a portion of the omentum was attached and the whole had the aspect as if it had been everywhere adherent and badly torn in removal.

"The portion of the uterus which was removed measured about 5.5 centimetres, the walls thickened (2 centimetres) and the cavity slightly dilated. The tube on the right side was elongated (14 centimetres), that on the left side normal (6 centimetres). Both ovaries were present, that on the right side flattened and elongated, that on the left normal in size. There was quite a broad cut surface on the posterior surface of the uterus, and a section through the wall at right angle to this did not show to the eye any sharp line between it and the soft, edematous, fibrous tissue of the tumor mass from which it had apparently been cut. But there was a gradual change to what seemed to be a looser and more edematous structure.

"*Microscopic Examination* showed at one end of the piece removed from the uterus a much more deeply stained and richly cellular part. The cells could be traced directly into bundles of smooth muscular fibres, while farther away from it they were not so clearly muscular in type, the nuclei being more rounded. There were numerous mitoses in the nuclei. In the main mass of the tumor the cells were distinctly fibrous in character, and the tissue formed was of the type of a loose, edematous tissue, and the edema was irregularly collected into spaces which could be dignified by the name of cysts. The walls of the larger cysts differed in no way from the smaller ones, except that the cells directly bounding on the cavity were a little elongated and pressed together.

"The *Diagnosis* is an edematous cystic fibroma, probably originating in the uterus."

DR. SINCLAIR spoke of two retroperitoneal tumors he had seen, one in the practice of Sir Spencer Wells and one in that of Dr. J. Homans, and emphasized the great difficulty of their removal.

DR. WHITNEY agreed to this, saying that usually retroperitoneal tumors ramify in every direction, therein differing from tumors of uterine origin.

DR. J. G. BLAKE called the attention of the Society to Dr. Hidden's ether inhaler.

AMERICAN PUBLIC HEALTH ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL MEETING, HELD AT OTTAWA, CANADA, SEPTEMBER, 27, 28, 29 AND 30, 1898.

(Concluded from No. 23, p. 576.)

DR. IRVING A. WATSON, of Concord, N. H., read a paper entitled

SOME OBSERVATIONS FROM PRACTICAL EXPERIENCE WITH BOVINE TUBERCULOSIS IN NEW HAMPSHIRE.

He gave a brief history of the official recognition of bovine tuberculosis in his State, and presented the following deductions: (1) That it is impossible to eradicate bovine tuberculosis, but that it may, without inflicting too great a burden upon the State, be reduced to a degree that will subserve the interests of the stock raisers and likewise protect the public health; (2) that but a very small percentage of animals infected with tuberculosis in any way endangered the public health, and that the indiscriminate slaughter of the cattle reacting to the tuberculin test is wholly unnecessary, inasmuch as many of them either recover or the disease is permanently arrested; (3) that a proper sanitary condition of stables and stable enclosures would do more toward preventing the spread of bovine tuberculosis than any other measure that could be adopted; (4) that the danger of infection from bovine tuberculosis may be reduced to very small proportions, if not wholly eradicated, by sanitary measures, inspections, and physical examinations by the State, in co operation with local authorities; (5) that such inspections, once inaugurated, could be maintained without an expense that would be burdensome to the State.

DR. M. SEPTIEN, of Queretaro, Mexico, read a paper on

COMPULSORY VACCINATION.

He stated that compulsory vaccination was not carried out from the year 1876 until 1884, and in 1885 such a strong epidemic broke out that in nine months

in Montreal thousands were attacked by small-pox, causing the death of 3,500 persons. He cited this as one of the most noted examples of the rapid spread of small-pox. A Pullman car conductor arriving from Chicago, where he had contracted the disease, was the vehicle of infection. Other examples were given, showing the disastrous effects of the indolence or the preoccupation of the masses and the negligence of the authorities.

REPORT OF THE COMMITTEE ON DEMOGRAPHY AND STATISTICS IN THEIR SANITARY RELATIONS.

The first part of this report, which was read by the Chairman, DR. CRESSY L. WILBUR, of Michigan, recommended the adoption of the Bertillon system of classification of causes of death by the Association, on the ground that it would render the mortality statistics of different States, provinces and countries fully comparable by sanitarians and others, and thus lead to great improvements in sanitation. Reliable and thoroughly comparable mortality statistics were absolutely essential for the use of sanitarians, and deductions based upon them were recognized as being of the greatest practical importance in public health work. The Association had now the opportunity to unify the statistics of a continent, besides bringing the work of mortality registration in North America into the closest relations with European statistics. At present the classifications used in the various States were in chaotic condition, nearly every one being different. This was true, even when the general system was apparently the same, so that data could be compared in the different registration reports only with the greatest uncertainty.

The progress of the classification recommended had been so rapid in the last two months that a supplementary report was necessary to bring the history of the movement down to the present time, and to provide for its further extension. The Conference of State and Provincial Boards of Health of North America had unanimously recommended its adoption at the meeting held last month at Detroit, and no less than twelve American States had formally adopted it since the beginning of the present year, besides which several others were only waiting for the action of the Association.

The formulation of a plan of international union of the countries using this system, whereby revisions can be made when necessary, occupied a considerable part of the report. The necessity of immediate action was strongly urged in order that the revised classification might be available for use in 1900. The Committee gave a practical example of the celerity which they recommended by stating that the plan of revision proposed, which was not drafted until after the Conference of the Boards of Health at Detroit, had already been submitted to the highest statistical authorities of France and their cordial approval and the promised co-operation of the French statistical service obtained. Correspondence is being conducted with the registration offices of Europe and South America, and arrangements have been made to announce the results of the revision at the session of the International Congress of Hygiene and Demography at Paris in 1900. The plan provides for consultation of pathologists, sanitarians and all persons making use of mortality statistics, as well as the registration offices, and the decision as to changes from the present form is to be determined by ballot of the registrars actually engaged in the preparation of such reports.

The system of classification and plan of revision were adopted by the Association, and the members of the National Commissions for the countries represented were appointed as follows: Canada: Drs. Peter H. Bryce, E. Pelletier, and E. P. Lachapelle; Mexico: Drs. E. Licéaga, J. E. Montjaras and J. Ramirez; United States: Drs. S. W. Abbott, A. G. Young and C. L. Wilbur.

DR. J. RAMIREZ, of Mexico, read a paper on

LEPROSY ASYLUMS.

He said that in the greater part of America leprosy had gradually disappeared, although it had left extensive foci, one in Columbia, and the other in Brazil. The disease was rarely found in Canada, although well-established cases had been seen. In the United States there were still a few small foci, which were found especially in Louisiana, Texas, California, Minnesota, Oregon, etc., but the recent annexation of the Sandwich Islands placed vaccination in an especial condition to at once undertake measures of defence against that immense focus of leprosy, which was so well known and dangerous. He recommended a full investigation of the lepers of North America.

LEPROSY IN MINNESOTA.

DR. H. M. BRACKEN, of Minneapolis, read a paper on this subject.

He said that the State Board of Health of Minnesota had knowledge of fifty-one lepers having resided in that State. Of these, seventeen had died before 1890. Of the thirty-four added to the records since 1890, eighteen were first reported upon in 1891, two in 1892, three in 1898, two in 1894, two in 1897, and seven in 1898, to date, September 15th. Little is known of the nationality of the seventeen who died before 1890, but from various reports he said it was safe to presume that they were all from Norway. Of the late thirty-four cases, twenty-nine were probably from Norway, and five from Sweden. Of the five from Sweden, one was reported first in 1894, the other four in 1898. Of the thirteen lepers known to be living, he could give but an outline of the present condition of only six. He drew attention to the following facts as emphasized by the records:

(1) The impression that leprosy immigrants from the Scandinavian peninsula were all from Norway was a wrong one, as five of eleven lepers placed on file by the Board during 1897 and 1898 were from Sweden.

(2) The feeling that physicians could quarantine against lepers by watching immigrants was an unsafe one. The family history of all immigrants from the country where leprosy prevails should be secured before they are allowed to embark for America, and no member of a leprous family should be permitted to land on our shores.

(3) It would appear that the conditions antagonistic to the spread of leprosy in Minnesota were also opposed to sterility, as borne out by the families of several lepers. Some of these had children (as was shown by the following figures — five, five, six, six, four, six, four, five and eight).

(4) It was quite possible for leprosy to die out in certain favored sections of the country, such as Minnesota, without segregation, provided the importation of lepers was discontinued.

(5) Even in Minnesota, one had but to visit some of these lepers to feel that segregation should be insisted upon in all cases. One cannot but feel, on entering a filthy home and seeing a leprous mother careless in her habits, that the children are not safe.

(6) Segregation in single States is not practicable. It would tend simply to drive lepers from States enforcing such a practice to those that were carrying out the system.

(7) A Federal Home should be provided for these unfortunates. They could thus be cared for more economically and more satisfactorily than through any State provision.

(8) In spite of all precautions taken, there will be some leprous individuals in this part of the world for many years to come. The Scandinavian peninsula did not furnish all leprous individuals found in the United States.

Great care must be exercised in dealing with lepers in the future. That we had been constantly importing this disease was a recognized fact, and that the chances of importing it would probably be increased rather than decreased unless great care was taken in dealing with infected countries. All the lepers that came to America did not settle in the Northwestern States, and all sections of the country might not be so unfortunate in affording such poor soil for the spread of the disease as did Minnesota. It was altogether probable that there were some lepers in Minnesota not registered by the State Board of Health.

MR. J. W. HUGHES, of Montreal, read the report of the

COMMITTEE ON SANITATION,

with special reference to drainage, plumbing and ventilation of public and private buildings. He spoke of an increased interest in all matters relating to practical sanitation. The untiring efforts of individual sanitarians in the past had resulted in awakening active inquiry and interest. Private and public sewers were to-day better constructed and more carefully planned than in the past; but the question of the best method for the disposal of sewage had yet to be solved, and was becoming of more pressing importance every day. The question of effective and economical ventilation of dwellings was one presenting many difficulties.

PROF. S. H. WOODBRIDGE, of Boston, dealt with the heating and ventilation of railway cars in a very exhaustive and elaborate report.

DR. G. MENDIZABAL, of Mexico, spoke of the diseases of the skin and of the hairy scalp which are commonly transmitted by contagion at schools, and pointed out the ways of preventing them.

Following Dr. Mendizabal there came a symposium on disinfection and disinfectants, the conditions of greatest efficiency of some common disinfectants, methods of testing and using them in cities, hospitals and in quarantine work.

Two papers were presented on

FLIES FROM AN HYGIENIC STANDPOINT.

Abundant evidence was adduced to show that diptera were active agents in the spread of epidemics and of contagion. It is well known that flies transmit the germs that produce active fermentation in alcoholic liquors. They are also known to be important factors in causing the spread of typhoid fever and dysenteric diseases.

The following officers were elected for the ensuing year: President, Dr. George H. Rohe, Sykesville, Md.; First Vice-President, Dr. Henry Mitchell, Asbury Park, N. J.; Second Vice-President, Dr. J. E. Monjaras, San Luis Potosi, Mexico; Secretary, Dr. C. O. Probst, Columbus, O.; Treasurer, Dr. Henry D. Holton, Brattleboro, Vt.

Minneapolis was selected as the place for holding the next meeting, the time of which will be in November, 1899.

Recent Literature.

A Text-book of Pathology. By ALFRED STENGEL, M.D., Instructor in Clinical Medicine in the University of Pennsylvania, etc. Philadelphia: W. B. Saunders. 1898.

This is a handsome volume of eight hundred odd pages and three hundred and seventy-two illustrations. In its plan and subdivisions it is very similar to the well-known "Lehr-buch" of Ziegler. It differs from that work, however, by having about one-third as many illustrations, and about half as many pages.

The aim of the author has evidently been to condense the presentation of the subject matter as much as possible. The language is clear and the descriptions and explanations are, for the most part, probably as lucid as the space would permit.

The work does not seem to us to be specially original either in conception or in execution, and we do not think that it deserves any extensive comment.

We note that the author draws a distinction between lymphadenoma and lymphosarcoma, but in his description of the histology of these growths he fails to make it clear that they are different.

The consideration of the pathology of the kidneys has seemed to us to be specially unsatisfactory. Under the head of glomerulo-nephritis only the capsular form is described, while the more important and comparatively more common intracapillary glomerulo-nephritis is not mentioned. The description of the other forms of nephritis is also inadequate and suffers from lack of sufficient illustrations. The book, as a whole, may be said to be a good text-book, but it is not the best one.

A Manual of General Pathology, for Students and Practitioners. By WALTER SIDNEY LAZARUS-BARLOW, B.A., B.C., M.D., M.R.C.P., late Demonstrator of Pathology and Examiner in Sanitary Science in the University of Cambridge, etc. Philadelphia: P. Blakiston, Son & Co. 1898.

This is a book of about eight hundred pages. It is written with the idea of presenting the subjects of general and experimental pathology and of pathological physiology, and leaves out almost entirely the details of pathological anatomy. It thus fills a certain deficiency in our text-books on pathology. The author's style is pleasing and clear. The subject matter is generally up to date. A valuable feature is the list of references to pathological literature, placed at the end of different sections of the book.

The book is entitled a "manual," but we are rather inclined to regard it as a collection of essays on important divisions of pathology. It shows originality of thinking and knowledge of the subjects treated.

The work deserves to be successful and we are glad to recommend it to students and physicians who wish to read an excellent presentation of the principles of pathology.

The Medical News Visiting List, 1899. Philadelphia and New York. 1898.

This excellent "Visiting List" comes out in its usual convenient form and presents its usual well selected and arranged contents. It has been carefully revised and brought up to date.

Those who are accustomed to its use will continue to use it, and to others it may be strongly recommended.

Histology, Normal and Morbid. By EDWARD K. DUNHAM, Ph.B., M.D., Professor of General Pathology, Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. New York and Philadelphia: Lea Brothers & Co. 1898.

This book is written with the purpose of supplying students of medicine with a text-book in histology which will not only contain an account of normal histology but also of the principles of pathological histology. It consists mainly of two principal parts, one on normal histology and the other on the "histology of the morbid processes." There is also a short part devoted to histological technique. The part on normal histology is the largest and most important of the book. Its descriptive matter is clearly expressed, and is thoroughly up to date. The distinguishing and most valuable features of this part and of the book are the numerous illustrations. Many of these are excellent, and new in American text-books. A number of subjects have seemed to us to be worthy of mention as being remarkably well illustrated, namely, the circulatory system, spleen, ovary, male reproductive organs, central nervous system, lymphatic glands, ductless glands and organs of special sense. In the description of the histology of the kidney we are glad to note that the cilia-like appearance in the epithelial cells of certain of the convoluted tubules are figured and mentioned. This is the first time that we have seen this point referred to in any book.

The account of the formation of the placenta is too brief, and is far from clear, while the structure and histology of that organ are only touched upon. We hope to see this omission corrected in the second edition.

The part devoted to the "histology of the morbid processes" aims at presenting only the general principles of the subject, and includes only a very brief account of some important processes. The author's idea, as expressed in his preface, is that the special applications of the principles to individual lesions may be better left to the classroom instructors. We think, however, that the average student of pathological histology absorbs more readily concrete statements and instances than general principles from his text-books, so that it is doubtful, in our opinion, whether this part of the work will conduce very much to its general use.

The subject matter of the part is considered under the various headings of "Degenerations and Infiltrations," "Atrophy," "Hypertrophy and Hyperplasia," "Metaplasia," "Tumors" and "Structural Changes Following Damage," the last-named heading covering infectious processes, inflammation and reparative processes. While the presentation of the subject matter of this part is good as far as it goes, it is inadequate for the needs of the majority of students. It is well illustrated.

The part on histological technique gives an account of some of the more important histological methods and of some laboratory methods that are of special importance in connection with clinical diagnosis.

Looking at the work as a whole, its great merit is the part on normal histology, which is distinctly good, and makes the book a welcome addition to the list of medical text-books. As a text-book on histology, whether for the medical student or for a work of reference, we can heartily recommend the book.

Text-book of Medical and Pharmaceutical Chemistry. By ELIAS H. BARTLEY, B.S., M.D., Ph.G., Professor of Chemistry and Toxicology in Long Island College Hospital, Professor of Organic Chemistry in the Brooklyn College of Pharmacy, etc. Fifth edition. Philadelphia: P. Blakiston, Son & Co. 1898.

This book is divided into five parts. Part I treats of chemical physics with chapters upon heat, light, electricity and crystallography. Part II treats of theoretical chemistry; Parts III and IV of inorganic and organic chemistry; Part V of physiological and medical chemistry.

The book represents a more extended and complete work upon descriptive chemistry as designed for use in medicine than any of the works recently published upon this subject.

The subject matter is excellent. The descriptions are detailed and very complete. All of these properties make the book an excellent one for a book of reference. Indeed, if the book be considered in the light of this purpose, it is hard to find anything in it for adverse criticism.

As a work designed for the student of medical chemistry, however, it cannot claim the same freedom from faults. It is a question, in the first place, whether the attempt to include so much in a work for beginners in this study is not a mistake. Emphasis and clearness are frequently lost in abundance of text or multiplicity of detail. This criticism applies in this work to the inclusion of so many subjects rather than to the quantity of matter upon any one subject.

A more positive fault of the work is a want of elementary clearness in the definitions and descriptions. In teaching the natural sciences one cannot but be struck by the absolute necessity of keeping one's text thoroughly elementary in character. The beginner must have his definitions and descriptions expressed in terms, and illustrated by images, with which he is conversant.

In the chapters upon theoretical chemistry in particular this work in hand has too little of this elementary character. This fault it shares with a majority of text-books upon this and other allied subjects. But that it is a fault and not a condition dependent upon the nature of the subject is demonstrated by another work upon chemistry lately reviewed in these columns, which leaves nothing to be asked in the simplicity of its style.

PLAGUE AT MADAGASCAR.—A cable message from U. S. Consul Gibbs at Tamatave, Madagascar, announces that bubonic plague has appeared at that place.

THE BOSTON

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WHAT IS A DISEASE?

AT a recent meeting of a society in Boston composed chiefly of physicians interested in the study of mental disease, a paper was read which concerned itself with the unity of "The Acute Psychoses as One Disease." The reader of the paper attempted to establish the affirmative side of this thesis, with much acumen. He drew attention to the vagueness of the current literature relating to psychiatry, to the fact that the same symptoms occur in a variety of abnormal conditions, that frequently a variety of symptoms occur in one so-called disease, notably in paralytic dementia, and, finally, that modern research on the pathological anatomy of the nerve cell has shown parenchymatous changes associated with varied morbid mental states. From these main facts, elaborated with much detail, the writer sought to demonstrate the point, that what we commonly speak of as different mental diseases, characterized, for example, by depression or exaltation, are, in reality, but one disease, with a pathological anatomy in structurally altered cortical cells.

The discussion following this somewhat radical point of view was antagonistic and desultory — antagonistic because of the deeply-rooted faith that is in us that no one fundamental process is likely to account for such varied phenomena as we see in mental disorders, and desultory because no preliminary statement was made as to what the writer personally meant by disease. That he had a conception no one can doubt, but that every other person in the assemblage also had his conception, and that each was different from every other, is just as little open to doubt. The difficulty in this, as in many other discussions, certainly lay in the fact that there was no common basis of argument, because of the uncertainty surrounding the exact meaning of the word "disease."

That the word has a wide range of significance no one will be disposed to deny, and it is equally true that its significance is continually changing as knowledge advances. Symptoms are, by degrees, being relegated to their true place as mere manifestations of morbid processes, and are less and less being dignified as, in themselves, entities. It is, therefore, certainly desirable for purposes of exact thought that we should all frame for ourselves a definite conception of what we mean when we use that commonest of medical terms "disease."

The "Century Dictionary" gives the following definitions:

(*a*) In general, a morbid, painful or otherwise distressing physical condition, acute or chronic, which may result either in death or in a more or less complete return to health; deviation from the healthy or normal condition of any of the functions or tissues of the body.

(*b*) An individual case of such a morbid condition; the complex series of pathological conditions causally related to one another exhibited by one person during one period of illness; an attack of sickness.

(*c*) A special class of morbid conditions grouped together as exhibiting the same or similar phenomena (symptoms, course, result), as affecting the same organs, or as due to the same causes, etc.

Huxley has defined disease as "a perturbation of the normal activities of a living body."

Evidently these definitions are vague, and are of small help in the final determination of our conceptions. This is due to a perfectly definite cause, and that is, the growth of knowledge. Hippocrates might perfectly well have defined disease as "a perturbation of the normal activities of a living body," so broad is the generalization. The moment we look at the matter critically we find certain fairly well-marked phases of thought through which men have gone in their search for exact statements, illustrated by the successive definitions of the "Century Dictionary."

In the first place, that which was superficially apparent was spoken of as a disease. So, fever, or a cough, or a wasting of the body, or an attack of unconsciousness, or a combination of one or more similar symptoms were spoken of as diseases. That these crude conceptions are still firmly rooted in the popular mind needs no reiteration here, but, nevertheless, they belong to the infancy of medicine. A second stage, and a great step in advance, was made when pathological research came into vogue. Then there came the insistence that the fever or the cough or the emaciation was merely the superficial expression of a process, the true nature of which could only be known by a painstaking post-mortem investigation. In other words, our conception of disease was broadened by an added element of fundamental importance, usually a pathological process, which, again, might manifest itself in varying ways, depending upon the organ or tissue involved. Slowly, but surely, therefore, we have come to picture to ourselves a morbid process, with its accompanying symptoms as a disease, subordinating the superficial manifestations to the underlying lesion.

A third stage, upon which we are just entering,

surely lies in the field of etiology. Here the researches of the bacteriologist have been of enormous value in clarifying our ideas. Through this means, in addition to the symptoms and the lesions, we are arriving at a knowledge of causes. Unquestionably, physiological chemistry and allied sciences must come to the aid of bacteriology to make the explanations anything like complete; and not until that is done may we speak with scientific accuracy of a disease as an "entity." In some cases this has been accomplished, and here we are on firm ground; in others progress is being made, and in others, still, a beginning is hardly yet in sight. In this latter category must certainly be included the so-called diseases of the mind.

There is no better example of these successive stages of thought than that offered by tuberculosis. At first, stress was laid merely upon the fact of wasting, with the accompanying cough and disturbed respiration, hence its popular name, "phthisis"; then it was found that the lungs were commonly diseased, and that herein lay an explanation of the superficial signs; later still the cause was found, and our whole conception thereby changed. Now we speak of *tuberculosis*, and we know that it may run its course with none of the symptoms popularly attributed to it. Tuberculosis is quite a different thing from phthisis, because the emphasis is placed where it belongs, on a process produced by a definite cause, and not upon its more or less chance accompaniments. Examples of this sort might easily be multiplied; a like analysis would always, we believe, lead to the same result.

If this be true, we do right when we insist upon a definition of what is meant by a disease before we enter upon a discussion as to whether it is one or many. We must state definitely where we place our emphasis — on symptoms, or pathological anatomy, or causes, or all combined. Could this be done, no doubt many words which lead to no conclusions might be saved. This is all the more true because there is chance for a difference of opinion, and, in fact, for so wide a diversity that no common ground is left as a basis for argument.

It goes without saying, that what we must regard as a logical definition of a known disease, namely, a morbid process, caused by a specific agent and leading to constant symptoms, is one which is applicable to relatively few conditions in the human body. This should, however, make us more, rather than less, exact in our use of language.

It does not follow from this that we may not for purposes of classification postulate, as probable elements in definite diseases, certain groups of symptoms, which occur constantly together. This is a fair method of science, and the chances are certainly in favor of the general establishment of the hypothesis, as facts relating to etiology and pathological anatomy accumulate. This method is particularly necessary for those working in the obscure field of psychiatry. Evidently here the problem presents itself in its most subtle form. When so distinguished an investigator as Nissl informs us that not in a single case of mental disturbance has he failed to find changes in cortical cells, and, in the same paper, that these changes give no true information as to symptoms observed during life, we of less knowledge are justified in withholding judgment as to the unity or diversity of morbid mental states. We must either say that there is no mental disease, that it is all a chaos of symptoms, or else that there are probably many diseases most imperfectly known. To say that we have a pathological anatomy of morbid mental processes, and, much more, a satisfactory etiology, is going far beyond the bounds of our present knowledge. Hence, to our mind, the discussion as to the unity or multiplicity of mental disease is absolutely unavailing. How are we to decide such a question when we have no idea what the disease is of which we are speaking?

In general, it must be evident to all thinking people that we need and must have a clear and somewhat uniform conception of what we, one and all, mean by a "disease." It is unquestionably time to set up for ourselves an absolutely definite idea in the matter, particularly if we propose to enter into argument.

THE MASSACHUSETTS HEALTH REPORT.

The twenty-ninth annual report of the State Board of Health of Massachusetts for the calendar year 1897 has to do with a population of approximately 2,610,000 people.

Of the 2,500,183 persons by the census of 1895, the number of native born was 1,735,253. There were 764,930 persons of foreign birth; 955,726 had both parents native, while 1,298,463 had both parents foreign. The number of those of mixed parentage was 203,206, or 8.13 per cent. of the total population. The number of persons for whom the facts as to parentage are unknown is only 42,788, or 1.71 per cent.

There has been a general decrease, with a fair degree of uniformity, in the death-rate from the principal infectious diseases, from 93 deaths per 10,000 living for the period 1861–65 to a little more than one-half that mortality in 1897.

During the year, 18 cases of small-pox were reported, with three deaths. The death-rate from typhoid fever, 2.47 per 10,000, while showing a gratifying decrease, still leaves room for improvement. The rate from diphtheria, 6.6, shows an improvement, while the remarkable reduction in percentage of deaths to cases, 27.9 to 15.1, from 1894 to 1896, must be explained by better treatment. The severe epidemic of cerebro-spinal meningitis was carefully investigated for the Board by Drs. Councilman, Mallory and Wright, and their special report is of the greatest value to preventive medicine. Dysentery has ceased to be a prominent factor in the mortality of the State. Malarial fever prevailed less extensively than in the previous year.

At the bacteriological laboratory work of great practical value is done in the examination of diphtheria cultures received from all parts of the State (2,204), of material suspected to contain the bacilli of tuberculosis and of blood for the malaria plasmodium. Diphtheria and tetanus antitoxin are also supplied to physicians and boards of health.

The board made investigations and gave advice during the year with regard to water-supply in 29 cases; with regard to sewerage and sewage disposal in 21 cases; with regard to pollution of streams in three. These matters occupy nearly a hundred pages of the report and are required by the statute to protect the purity of inland waters.

No action further than the board's advice was required in the offensive and noxious trades, and this was also freely and frequently given with regard to nuisances the control of which is in the hands of local authorities.

The usual investigations on the examination of water-supplies, on the examination of rivers, on water-supply statistics, rainfall and flow of streams, on filtration of sewage and its purification, on filtration of water, on sewage disposal in cities and towns in the State by intermittent filtration occupy more than four hundred pages of the report, and furnish exact information in specific cases and general knowledge of the widest scope and the greatest usefulness in these most important matters.

Under the food and drug inspection act, 6,046 samples of milk were examined during the year, of which 31.3 per cent. was found below standard; of 3,944 samples of other food, 12.8 per cent. was adulterated; of 690 samples of drugs, the percentage of adulteration was 35.9. There were 65 prosecutions, of which 51 were for adulteration of milk, and 64 convictions, with fines of $2,756.60.

In their three years of work, the board has distributed 9,611 bottles of diphtheria antitoxin, representing nearly 10,000,000 units, for 953 cases, in which the fatality has been 10.4 per cent. Out of 294 cases in which antitoxin was administered on the first day of illness, there were only 13 deaths, or 4.4 per cent.; and out of 711 cases treated in the first two days of illness, there were only 46 deaths, or 6 5 per cent.; while the deaths in 156 cases in which antitoxin was not employed until the sixth day or later were 30, or 19.2 per cent.

The statistical summaries of disease and mortality are made up of (1) the voluntary weekly mortality returns from cities and towns, serving principally to show the seasonal prevalence of each of the infectious diseases and the mortality of children under five years of age; (2) a digest of cases and deaths obtained from annual reports of local boards; (3) a critical summary of the reports of every case of "disease dangerous to the public health" which the local boards are required to report to the State Board; (4) the full reports of deaths occurring in each city and town having over 5,000 inhabitants, in accordance with the act of the Legislature, which provides that "in each city and town having a population of more than five thousand inhabitants, as determined by the last census, at least one member of said board shall be a physician, and the board shall send an annual report of the deaths in such town to the State Board of Health. The form of such reports shall be prescribed and furnished by the State Board of Health."

Under Health of Towns, reports from 55 cities and towns indicate a very marked progress in sanitary matters in many directions. Eight cities and towns have hospitals for infectious diseases.

The medical profession and the State generally are justly proud of the board's twenty-nine years of excellent work and its beneficent results.

MEDICAL NOTES.

YELLOW FEVER AND WINTER WEATHER. — The Health Reports of the Marine Hospital Service for the week ending December 10th present only one case of yellow fever, and that occurring in the City of Mexico.

THE SANATORY CLUB OF BUFFALO. — The Sanatory Club of Buffalo, the President of which is H. R. Hopkins, M.D., and the Secretary Thomas B. Carter, M.D., has presented a very interesting programme for its meeting of Wednesday, December 14th, the topic of the evening being "Hygienic Camps." and the following papers having been promised: "The Hygienic Camp," Henry R. Hopkins, M.D., Professor of Hygiene, University of Buffalo; "The Camp of Instruction," Lieut. Peter C. Harris, Quartermaster Thirteenth United States Infantry; "Sewers," C. E. P. Babcock, C. E., Assistant City Engineer, late Major Sixty-fifth New York Volunteers; "Water-Supply," L. H. Knapp, C. E., Assistant Superintendent and Engineer Bureau of Water; "Garbage and Sewage Disposal," Edward Clark, M.D., late member of the Committee on Disposal of Sewage and Garbage, American Public Health Association; "Statistics," Lieut. Paul B. Malone, Thirteenth United States Infantry; "Walks and Streets," H. C. Gardner, Seventy-fourth Regiment, N. G. S. N. Y.; "The Relative Importance of Flies and Water-Supply in Spreading Disease," M. A. Veeder, M.D., Lyons, N. Y.

DEATH OF SIR WILLIAM JENNER. — Sir William Jenner, physician in ordinary to the Queen and the Prince of Wales, died Monday, December 12th. He was born at Chatham, in 1815, and was President of the Royal College of Physicians and Surgeons from 1881 to 1889, when he retired from the practice of his profession. He was the first English physician to convince his countrymen of the difference between typhus and typhoid fever, although this differentiation had been much earlier demonstrated by Louis in Paris, and by his students, Gerhardt and Stilte, of Philadelphia, Jackson and Shattuck, of Boston, and Stewart, of Scotland. In 1861 Jenner was appointed physician ex-

traordinary to the Queen, and the next year he was gazetted physician in ordinary to Her Majesty, receiving the same preferment, in 1863, in the household of the Prince of Wales. In recognition of his services, rendered during the Prince's illness from typhoid fever, he was made knight commander of the Bath. He was a consultant of great skill and large experience.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, December 14, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 58, scarlet fever 18, measles 87, typhoid fever 8.

Death of Dr. George Z. Higgins. — Dr. George Z. Higgins died Monday, at Strong, Me. He was born in 1832, and graduated at the Maine Medical School, class of 1858. He served during the war as surgeon in the Fifteenth Regiment, Maine Volunteers.

Dinner to Physicians of the Hospital Ship "Bay State."—A dinner was given last week by the officials of the Atlantic Works to the physicians who served on board the hospital ship *Bay State* during the war. The officers of the Massachusetts Volunteer Aid Association also were present as guests.

The Boston Society of Medical Sciences. — A meeting of this Society was held at the Harvard Medical School, Tuesday evening, December 6th. Dr. Franklin Dexter gave the results of his researches "On the Morphology of the Digestive Tract of the Cat." The work was done on embryos by means of the method of dissection, to which Dr. Dexter paid a warm tribute. The general conclusions were, that there is little constancy in the arrangement of the coils of the intestine in the cat; that the growth of the liver exerts a definite influence on the position of portions of the gut, as also of the stomach; and that mechanical causes, in general, play an important part in the development of the viscera studied. Dr. Morton Prince read a paper on "An Experimental Study of Visual Hallucinations," the subject being a person of exceptional susceptibility to suggestion. By means of hypnosis three personalities were easily distinguishable, the extent of whose mental life increased progressively the deeper the hypnosis. Particularly interesting was an experiment relating to delirium. Dr. Prince was of the opinion that the visions he was able to produce artificially did not differ in origin from the spontaneous varieties. Dr. W. T. Whitney demonstrated a simple apparatus for collecting and separating sediments. He also showed a translucent slate, by means of which rough drawings of specimens might be made, to be later transferred to paper.

NEW YORK.

A Board of Embalming Examiners. — Governor Black has appointed a State Board of Embalming Examiners, consisting of five members, in accordance with an act passed by the Legislature at its last session. The law provides that after the present year no person shall practise embalming in the State unless he shall have received a certificate of qualification from this Board.

Typhoid Fever and Milk Cans. — Dr. Eugene Monaghan, Sanitary Superintendent of the Borough of Bronx, has sent to the Board of Health a report, in which are included the investigations of Mr. Hirshman, the analyst of his department, relating to a recent outbreak of typhoid fever, of comparatively mild type, in the district under his supervision. It was ascertained that all the cases investigated, with the exception of four, are in families supplied with milk furnished by one large dealer, who obtained the milk from Copake, Westchester County, and that there were two cases of typhoid in the dealer's own household. His wife, it was found, was the first person attacked, and in her case the disease developed itself on November 8th. Of the four exceptional cases mentioned, two were in soldiers who contracted the disease at Camp Black. While the origin of the typhoid has not as yet been positively determined, Dr. Monaghan expresses the opinion that the evidence obtained points to the probability that the cans which contained the milk were washed in water which contained typhoid germs, some of this water remaining in them at the time they were filled. The spread of the disease appears to have been checked, as no new cases have been reported since December 5th.

Endowment of a Children's Ward for Roosevelt Hospital. — At a meeting of the Trustees of Columbia University, held December 5th, President Low announced that a gift of $50,000 had been received (the name of the donor to remain secret) for the endowment of a children's ward in Roosevelt Hospital, to be known as the "Abram Jacobi Ward for Clinical Instruction." The terms of the gift provide that the University is to name the clinical teachers. It was also announced that the Chamber of Commerce Waring Memorial Fund of $100,000 will, after the death of the widow and daughter of Colonel Waring, who are to have the use of its income during their lives, revert to Columbia for the foundation of a chair on municipal administration. About three-fourths of the required sum have already been subscribed.

A Prolific Immigrant. — Among the steerage passengers of the steamship *Lucania* on a late voyage was a woman from County Kerry, Ireland, who had among her children two sets of twins and one set of triplets.

A Seven Hundred Pound Patient. — There is now in the wards of the Harlem Hospital the largest patient ever admitted into that institution. She is Mrs. Hannah McKenzie, a paralytic, fifty-eight years of age. She is said to weigh seven hundred pounds, and it required the services of nine men to carry her from the fourth floor of the house in which she lived down to the hospital ambulance. Up to her present

illness she was exhibited as a fat woman in the dime museums.

REPORT OF THE RED CROSS WORK. — The American Red Cross National Relief Committee held a meeting, on December 9th, to receive the reports of its Executive Committee and the various field agents upon the work accomplished during the war. Bishop Potter presided, and among the speakers was Dr. A. M. Lesser, Chief Surgeon of the Association. The report of the treasurer showed that the Relief Committee had received, from May 9th to December 1st, a total of $305,229, and that the expenditures amounted to $277,604, leaving a balance of $27,625.

DEATH OF DR. GOUVERNEUR MATHER SMITH. — Dr. Gouverneur Mather Smith, one of the foremost representatives of old New York, both in its medical and social aspects, died on December 8th, of cardiac disease. His father, the late Dr. Joseph Mather Smith, was a leading physician of the city and professor in the College of Physicians and Surgeons. Dr. Smith was graduated from the University of the City of New York in 1852, and from the College of Physicians and Surgeons in 1855. In 1856 he was appointed physician to the DeMilt Dispensary. He was in the medical service of the United States Army during the Civil War. In 1866 he was appointed an attending physician to the New York Hospital to succeed his father. From 1875 to 1878 he was one of the Vice-Presidents of the New York Academy of Medicine, and afterwards one of the Trustees of the Academy. He was a frequent and valued contributor to medical literature, and was an authority on genealogy and local historical matters.

THERAPEUTIC NOTES.

INTESTINAL ATONY: [1]

℞ Sodii benzoatis . . . . . gr. lxxv
Pulv. rhei . . . . . gr. lxxv
Pulv. nuc. vom . . . . . gr. ss
M. Et divide in cachets No. 10. Sig. Two to three a day.

FACIAL ERYSIPELAS: [2]

℞ Acidi carbol. }
Tinc. iodini } āā . . . . . ℥ ii
Alcohol }
Ol. tereb. . . . . ℥ ss
Glycerini . . . . . ℥ i
M. Sig. Paint every two hours and cover with an aseptic gauze.

WHOOPING COUGH. — J. Madison Taylor [3] finds the following, when administered to a child every three hours, of great value in pertussis:

℞ Antipyrine . . . . . gr. ss to i
Ammon. chlor. . . . . gr. iiss to gr. v
Syr. limonis . . . . . ℥ ss
Aquam ad . . . . . ℥ i M.

or

℞ Antipyrine . . . . . gr. ss to ii
Ammon. brom. . . . . gr. i to ii
Ammon. mel. . . . . gr. v
Syr. simpl. ad . . . . . ℥ i M.

FOR THE TREATMENT OF CHRONIC MORPHINISM. [4] — Hirt [5] recommends first of all total abstinence from morphine. The first three days are the most difficult for the patient to overcome; but once passed there is hope for recovery. During these three days chloral (45 gr.) or trional must be administered to combat the insomnia consequent upon the withdrawal of the drug. If the sleep is restless, patient is given a warm bath of thirty minutes' duration, followed by a cold douche. On the fourth day begins the treatment by suggestive therapeutics carefully conducted, at first suggesting general harm from morphine, and eventually creating in the patient a feeling of horror and repugnance towards the poison. Out of thirty-five patients treated in this manner, twenty-seven were entirely cured, two committed suicide during the first three "terrible" days, the rest were lost track of or relapsed.

TREATMENT OF CHANCROID SORES WITH CALORIC RADIATION. — M. Reynaud [6] heats the point of the thermo-cautery to white heat and holds it during four or five minutes some two centimetres over the sore. The application is repeated every twenty-four hours. The sensation experienced by the patient is rather disagreeable than painful. This treatment is applicable to all the stages of chancroid ulceration, but preferably after the acute pus-formation symptoms have subsided, when improvement and cicatrization take place with a rapidity really surprising. As a dressing, in the intervals of the treatment, a layer of absorbent cotton saturated with distilled or boiled water is sufficient.

[1] Huchard, Gazette des Hôpitaux, 123, 1898.
[2] Canadian Practitioner, June; Münch. med. Woch., 38, 1898.
[3] The Practitioner, November, 1898.
[4] Münch. med. Woch. 44, 1898.
[5] Ther. Mon. Hefte, 10, 1898.

Correspondence.

SURGERY IN PARIS.

PARIS, November, 1898.

Mr. Editor: — Some of your readers will be interested in the following notes on surgery in Paris. They are the result of visits to the leading Parisian hospitals and will give a fair impression of the principal surgeons of Paris, those who exert large influence upon medical students and consequently upon embryo surgeons.

It may be thought that my criticisms are stringent. My intention is to make them so, otherwise they would be of little value. While I shall try to give every man his due, it will be my aim to show where it seemed to me that surgical work might have been performed with greater care and with stricter attention to that *sine qua non* of modern surgery — *asepsis*. As will be seen, there are wide differences in the procedures of Parisian surgeons of to-day. But while one surgeon whose work is bad severely criticizes the methods of men whose surgery is excellent, the latter are kindly in their judgment of their surgical *confrères*. Still, as one moves about among them he is astonished by the freedom of cynical criticism of each other in which they indulge — a liberty which no American surgeon would allow himself, even though he felt inclined so to do. Indeed, such a course would cost him reputation for courtesy and loyalty and would inevitably lower his professional standing; but such a result does not seem to accrue in Paris. Whether envy or jealousy be the source of this ungenial and non-fraternal habit I was unable to learn. It is, however, gratifying to be able to add that, in my experience, this peculiarity was not general, but was confined to a few men; still these exceptions were men of high standing whose example is influential.

In the hospitals of Paris there is great abundance of surgical material, and the surgeons find it difficult to keep pace with operative needs. Even after the summer vacation has begun the surgeons continue their work at the usual hour and the visitor will find examples of every sort of operation. Abdominal surgery, however, seems to pre-

[6] Marseille Med., September 1, 1898.

dominate, and the number of uterine, ovarian, tubal and cystic operations upon females of all ages from sixteen years and upward is very large. The extreme youth of many of the patients is striking and surprising. Is it because they are French?

The amount of hospital work which is done in Paris is immense, and the devotion of surgeons to public patients is nobly unselfish.

A very satisfactory preparation of patients for operation is general, and, before he operates, the average surgeon is careful to bring his patients up to a good condition. Chloroform is the usual anesthetic, but those surgeons who use ether do not regret the change, on the contrary, they criticize the men who continue the administration of chloroform. Ethyl bromide, which quickly prepares a patient for ether, is not used anywhere in Paris. If it be used, it did not fall under my observation. Ether is given from a flannel covered cone without sponge, and is freely used. Chloroform is applied upon a bit of cotton cloth which covers the nose and mouth of the patient and, anesthesia once begun, the cloth is seldom lifted, the fluid being added by drops.

In but one instance did I see the pulse watched during the operation.

Catgut is in general use but silk is commonly adopted for internal sutures, the catgut ligating the external wound. In some cases catgut is used both internally and externally. One surgeon confined himself, for all requirements, to ordinary sponges.

Large differences in the use and care of gauze sponges, bandages and cloths were noticeable, some surgeons leaving the canisters open from beginning to end of the operation, the assistant passing these conveniences to the surgeon by hand. Other surgeons insist upon closure of the canister at once after opening it, and the gauzes are taken out, passed to them by means of aseptic forceps, and they are applied without being touched by hand.

Then, according to the surgeon, there is the dry and the wet pan of instruments. In the one case the latter are laid upon dry aseptic gauze, in the other they are covered by sublimated or carbolized water. In the first case one usually sees instruments in use thrown down among and therefore soiling clean instruments, to be afterward picked up by bloody and soiled fingers, the entire collection finally becoming a pell-mell assortment of clean and bloody utensils. There are exceptions to this carelessness.

Again, a surgeon keeps his knives, etc., in an aseptic fluid, and during the operation he will be seen to wash his soiled hands in the fluid of the trays.

Ligatures are sometimes wound upon delicate spools of glass, sometimes are laid upon the instruments in hanks. In no instance did I see glass spools suspended in glass racks in which they revolve, these being immersed in sublimated water. In all cases ligatures were kept exposed to the air, or the spools were kept among the instruments in aseptic fluid, but needles were unfailingly threaded by bloody fingers.

Throughout my study of the methods of the surgeons of Paris I kept in mind, as my standard of comparison, the only perfect application of asepsis which I had seen abroad, namely, at the hands of Kocher of Berne. For example, his needles were threaded from spools which spun in germicidal fluid, by a woman whose hands constantly dripped with aseptic applications; the needle was grasped by Kocher's needle-holder and no soiled hand ever touched the ligature. His instruments were always kept submerged, were passed to him by forceps, and, during use, were frequently plunged into special glass bowls of lysol or sublimated water. Moreover, he never allows a visitor to enter his operating-room until the latter has assumed a freshly baked linen coat, which he must button to the throat, turning up the collar, the skirts reaching his feet. In only one of the Parisian clinics which I visited was this required.

Now, it is simply logical, if visitors enter an operating-room directly from the street in ordinary attire, that their absolute nearness to instruments, ligatures in dry trays, and to open canisters containing gauzes, not to mention their proximity to the wound, will inevitably endanger the purity of everything about them. Without the excessive care used by Kocher, there is a wide gap between surgical work, which may seem excellent, and easily attainable and nearly perfect asepticism. In some of the Parisian operating-rooms are hung cards bearing the inscription: "You are requested not to touch instruments and, during the operation, not to speak aloud." This brings to mind the varying manner of surgeons while they operate. The majority are quiet and speechless. There are others who talk incessantly with assistants and visitors, explaining the operation in hand, giving reasons for their diagnosis, saying what they expect to find, drawing comparisons between their operation and similar undertakings at the hands of other surgeons. Some are calm and give orders quietly. Others are excitable, critical of assistants, irritable and noisy. The calm men have only two, perhaps three, aids; the excitable surgeons have six to eight assistants and still find fault.

In their dress for operation there is large variety, from one who removes even his shirt and trousers, to assume a special costume, to those who, while wearing aprons, roll up the shirt sleeves, which may be seen to come in contact with the patient, the surgeon's hands and wrists having been purified but not the arms.

The average toilette of the hands is good, although there are those who in this respect are merely perfunctory. The toilette of patients exhibits similar discrepancies. In some instances it was perfect, in others too quickly done and shaving of the parts only half performed.

Cleansing after the operation was rarely satisfactory. In one instance involuntary discharges were left about the anus and upon the nates, and the wound remained in a soiled condition. The claim everywhere, however, was that the death-rate after operation was low. As to care of patients on days following operation, it is usually good, and most wards are fairly clean, some of them markedly so. But in one I saw a woman who had a fractured leg with large destruction of tissue. The limb had not been dressed for two days. It was bathed in pus, was foul and ill-smelling. The surgeon mildly rebuked his assistants. The ward was not clean. I am glad to say that this was a decided exception. It reminded me of an observation which I quoted in a letter written to the JOURNAL from Paris twelve years ago, namely, a surgeon said in my hearing that erysipelas was then "just as prevalent as it was previous to Listerism." I wrote that I was not surprised, for such astonishing uncleanliness as then existed in the wards of the surgeon in question would almost inevitably lead to erysipelas. Such, however, are the changes which since have been introduced that this very gentleman is now one of the strictest disciples of asepticism. It is always the younger men of Paris who are the most particular and the most exacting in the aseptic treatment. The older men have had to abandon old habits and habit is as strong as death and almost as unconquerable.

These older men perhaps still retain a leaven of the contempt for asepticism which pervaded the remark of one of the most famous of American surgeons, who, in addressing his class with reference to Listerism, then new and untried, said, "It is dirty business, gentlemen, dirty business." This was nearly thirty years ago. I was present when the remark was made. If this surgeon were living to-day and his words referred merely to the carbolic spray I should agree with him. But his thought was influenced by the feeling that the methods of his long life were good enough. He was fond of "good, laudable pus." He disliked the bother of the new *régime*.

In applying baked and powdered clay to wounds with good aseptic results, Addinell Hewson unconsciously antedated Listerism, but he was voted a crank. I could not help feeling that some of the older surgeons of Paris yielded to the stern requirements of modern surgery because it was unavoidable. At any rate, their methods were far from precise and careful.

(*To be continued.*)

METEOROLOGICAL RECORD

For the week ending December 3d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...27	29.45	28	35	22	100	95	98	N.	N.W.	48	24	N.	N.	1.05
M..28	29.70	29	36	32	98	62	78	N.W.	N.W.	25	14	O.	C.	.05
T...29	29.58	33	40	26	56	61	58	W.	S.	12	2	C.	C.	
W..30	29.31	32	36	29	98	70	84	N.	N.W.	17	16	N.	O.	.35
T....1	29.69	38	40	32	68	62	65	W.	S.W.	17	16	C.	C.	
F....2	30.13	36	44	28	71	61	66	W.	S.W.	14	12	C.	C.	
S....3	30.28	35	41	29	71	75	73	N.W.	N.E.	2	9	O.	O.	
☞	29.73	33	39	27			75							1.45

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 3, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	3,438,899	—	—	—	—	—	—	—
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,240,226	—	—	—	—	—	—	—
St. Louis	623,000	—	—	—	—	—	—	—
Boston	528,483	289	61	9.12	17.28	.48	4.32	2.88
Baltimore	508,389	179	49	11.20	14.56	1.68	3.36	6.16
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	—	—	—	—	—	—	—
Pittsburg	295,000	89	32	16.80	13.04	3.36	5.60	1.12
Washington	277,000	117	35	11.05	11.95	.85	3.40	3.96
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	68	15	4.41	19.11	2.94	—	—
Nashville	87,754	25	4	8.00	16.00	4.00	4.00	—
Charleston	65,165	34	7	8.82	2.94	5.88	2.94	—
Worcester	108,240	29	12	24.15	6.90	10.35	—	3.45
Fall River	95,949	37	14	13.50	16.20	5.40	2.70	5.40
Cambridge	89,732	26	7	15.40	23.10	3.85	—	7.70
Lowell	88,641	36	14	15.08	16 66	2.77	—	5.54
Lynn	66,703	11	2	—	—	—	—	—
New Bedford	66,340	22	10	12.45	—	4.15	—	8.30
Somerville	61,101	18	3	11.11	16.66	5.55	—	—
Lawrence	57,263	18	7	11.11	11.11	5.55	—	5.55
Springfield	56,501	31	3	9.69	6.46	—	3.23	6.46
Holyoke	43,424	5	3	40.00	—	20.00	—	—
Brockton	37,278	—	—	—	—	—	—	—
Salem	36,883	3	0	—	—	—	—	—
Malden	34,613	10	2	10.00	30.00	10.00	—	—
Chelsea	33,468	13	1	—	7.69	—	—	—
Haverhill	32,022	12	4	16.66	8.33	—	—	—
Gloucester	30,589	10	3	20.00	—	—	—	—
Newton	29,716	11	5	9.09	9.09	—	—	9.09
Fitchburg	29,438	9	4	—	—	—	—	—
Taunton	25,167	16	—	—	18.75	—	—	—
Everett	25,338	6	2	—	33.33	—	—	—
Quincy	23,549	4	2	—	75.00	—	—	—
Pittsfield	22,643	—	—	—	—	—	—	—
Waltham	21,812	8	3	25.00	37.50	—	12.50	12.50
North Adams	20,971	6	4	—	33.33	—	—	—
Chicopee	17,842	7	4	—	42.81	—	—	—
Medford	16,511	5	1	20.00	20.00	—	—	20.00
Newburyport	14,915	3	0	—	—	—	—	—
Melrose	14,032	4	0	—	—	—	—	—

Deaths reported 1,113; under five years of age 315; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 126, acute lung diseases 168, consumption 128, diphtheria and croup 40, typhoid fever 31, diarrheal diseases 24, whooping-cough 11, cerebro-spinal meningitis 5, scarlet fever 3, measles 2, erysipelas 1.

From whooping-cough Pittsburg 4, Haverhill 2, Boston, Providence, Worcester, Holyoke and Peabody 1 each. From cerebro-spinal meningitis Boston, Washington, Worcester, Lowell and Gloucester 1 each. From scarlet fever Pittsburg 2, Cambridge 1. From measles Boston and Gloucester 1 each. From erysipelas Worcester 1.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending November 26th, the death-rate was 17.4. Deaths reported 3,748; acute diseases of the respiratory organs (London) 280, measles 83, fever 82, diphtheria 81, whooping-cough 51, diarrhœa 48, scarlet fever 19.

The death-rates ranged from 11.3 in Croydon to 26.1 in Wolverhampton; Birmingham 18.5, Bradford 14.3, Cardiff 12.3, Gateshead 21.6, Huddersfield 12.2, Leeds 18.1, Leicester 18.5, Liverpool 22.3, London 16.7, Manchester 19.9, Newcastle-on-Tyne 18.0, Nottingham 18.3, Portsmouth 17.3, Sheffield 16.5, West Ham 14.7.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING DECEMBER 1, 1898.

STONER, GEORGE W., surgeon. Granted leave of absence for seven days. November 26, 1898.

PECKHAM, C. T., surgeon. Upon being relieved by Surgeon H. R. CARTER, to rejoin station at Pittsburg, Pa. December 1, 1898.

GLENNAN, A. H., surgeon. Relieved from duty at St. Louis, Mo., and directed to report at Washington, D. C., preliminary to assignment to duty at San Juan, Porto Rico. November 26, 1898.

BROOKS, S. D., surgeon. Relieved from duty at Port Townsend (Washington) Quarantine Station and directed to proceed to Angel Island, Cal., and assume command of the San Francisco Quarantine. November 26, 1898.

COBB, J. O., passed assistant surgeon. To proceed to Pittston, Pa., for special temporary duty. November 19, 1898. To proceed to Arizona and New Mexico on special temporary duty. November 29, 1898.

STONER, J. B., passed assistant surgeon. Granted leave of absence for seven days. November 26, 1898.

PERRY, J. C., passed assistant surgeon. To assume command of the Port Townsend (Washington) Quarantine Station in addition to other duties. November 26, 1898.

YOUNG, G. B., passed assistant surgeon. To proceed to Philadelphia, Pa., for special temporary duty. November 22, 1898.

ROSENAU, M. J., passed assistant surgeon. Upon being relieved from duty at the San Francisco Quarantine, to report at Washington, D. C., preliminary to assignment to duty in Cuba. November 26, 1898.

NYDEGGER, J. A., passed assistant surgeon. Granted three days' extension of leave of absence. November 29, 1898.

STEWART, W. J. S., passed assistant surgeon. To proceed to Crisfield, Md., and report upon the advisability of establishing a relief station at that port. November 19, 1898.

CUMMING, H. S., assistant surgeon. Granted leave of absence for seven days. November 26, 1898.

TABB, S. K., assistant surgeon. Granted leave of absence for seven days, to take effect upon being relieved from duty at Vineyard Haven, Mass. November 29, 1898.

LAVINDER, C. H., assistant surgeon. Granted leave of absence for seven days. November 29, 1898.

RUSSELL, H. C., assistant surgeon. Granted leave of absence for seven days from November 16, 1898. November 16, 1898.

PARKER, H. B., assistant surgeon. Granted leave of absence for two days. November 25, 1898.

LUMSDEN, L. L., assistant surgeon. Relieved from duty at Egmont Key, Fla., and directed to proceed to Washington, D. C., for orders. November 21, 1898. Assigned to duty as sanitary inspector of U. S. transport "Manitoba." November 28, 1898.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 19th, at 8 o'clock.

Dr. J. J. Putnam will present the subject: "Some of the Aims and Methods of Modern Hydropathy."

Dr. M. H. Richardson will read a short paper on "Diverticulum of the Esophagus, with Extirpation," and

Dr. M. Storer on "Retrodisplacements of the Gravid Uterus."

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, December 21, 1898, at 8 P. M.

At 8 o'clock: Dr. J. N. Coolidge, "A Case of Exophthalmic Goitre."

At 8.15 o'clock: Dr. G. B. Magrath will show an interesting pathological specimen.

At 8.30 o'clock: Dr. Gustav Liebmann will show "An Appliance (Langerhan's) for the more Effective Blowing Up of the Stomach."

At 8.45 o'clock: Dr. W. H. Prescott, "Double Dissecting Aneurism, with Report of a Case."

J. B. OGDEN, M.D., *Secretary*,
Harvard Medical School, Boston.

Original Articles.

FEAR NEUROSIS.[1]

BY MORTON PRINCE, M.D.,
Physician for Nervous Diseases, Boston City Hospital.

THERE is a neurosis which, I believe, has never hitherto been described, and which is, I have learned, very common amongst musicians and others who appear before the public. This neurosis has been overlooked, because it is commonly looked upon as merely the manifestations of timidity or self-consciousness; but I am satisfied that it is more than this, for although it originates in timidity it persists as an automatic physical neurosis long after timidity has ceased to exist, and entirely independent of the original exciting cause. In fact, the characteristic peculiarity of the neurosis is this: that, although the symptoms are the natural physical manifestations of fear, nevertheless they are not accompanied by this emotion, but exist independently of any psychical state as a group of pure physical symptoms. Hence the term phobo-neurosis is more exact than phobo-psychosis.

Two sets of causative factors must be distinguished:

(1) A natural or excessive timidity at the beginning, in consequence of which certain external conditions have repeatedly excited fear and its physiological manifestations (tremor, palpitation, faintness, etc.). By a constant repetition, as would necessarily be the case with a musician, for example, these physical symptoms become welded together into an automatic process which persists as a true habit neurosis. This may be looked upon as a sort of degeneration of nervous processes by which frequently associated actions become grouped together. Physiologically, this is the same principle by which any art (violin playing, fencing, rowing) is learnt; pathologically, it is the basis of many neuroses and psychoses. After a time, as a result of maturer years and experience, the psychical emotion, fear, subsides, but the physiological manifestations persist — an apparent paradox.

(2) After the neurosis has become developed the immediate exciting cause of each individual attack is a primary auto-suggestion in the form of apprehension or expectation that the symptoms will come on under such and such circumstances, such as playing in public, and a secondary direct excitation by the act itself in accordance with the primary auto-suggestion. Such, at least, is the theory which seems to me to best explain the phenomena. But whether or not this is the correct interpretation of the genesis of the neurosis, the existence of the neurosis itself is, it seems to me, unquestionable.

OBSERVATION I. A professional singer, thirty years of age, consulted me for the following symptoms: Whenever he sang in public he was affected with (1) feeling of "goneness" and general trembling; (2) feeling of throbbing in the head; (3) palpitation; (4) perspiration; (5) general weakness. The same group of symptoms always appeared and in the same order. The trembling was objective, so that he could with difficulty hold his music. He had suffered in this way from ten to twelve years. He stated most emphatically that at present he had no lack of confidence in himself but, on the contrary, had a high opinion of his own ability — in fact, as he expressed it, was rather "stuck on himself."

He did not mind the symptoms *per se*, but they interfered so much with his work as to be a serious hindrance. For this reason he sought advice. He knew of no cause for his trouble, and did not ascribe it to shyness or timidity, as he did not feel shy or timid. He thought it might be due to some sort of organic nervous disease, and this idea and the importance of being able to fill a professional engagement led him to seek advice.

If he was to give a concert, during the two or three days preceeding the appointed time these symptoms came on whenever he thought of the concert, that is, the idea of singing, and even practising, brought them on. He also had then a desire to have a movement of the bowels. This circumstance emphasizes the independence of the neurotic process. Careful inquiry elicited the facts that as a boy he was abnormally shy and bashful, and that when he *first began to sing* he had no confidence in himself. At this time these symptoms developed. But since learning to sing his shyness ceased and he has regained thorough confidence in his ability, but the symptoms which were originally excited by timidity have persisted, so that a sort of paradoxical condition exists, — the physiological manifestation of an emotion without the emotion itself. For it will be remarked that the symptoms in this case are only the ordinary manifestations of timidity and lack of confidence in one's self, such as would be excited in a novice by the ordeal of a public performance.

But in this case, by the law of association and by frequent repetition, they have been formed into an automatic process, so associated with the act of singing or idea of singing that either the act or the idea would excite the whole. But this, as the sequel will show, would not take place unless the subject made a suggestion to himself that this would occur. This suggestion was the apprehension or expectation that the neurosis would appear and spoil his performance.

This expectation was always present in his mind before a performance, and must be distinguished as something very distinct from timidity, which did not exist, as he thought. But I think it is open to question how far any one can analyze and state with precision the nature of his own state of consciousness at any particular moment. Nevertheless little more than traces of timidity was probably present. In other respects his health was good, excepting that he was a poor sleeper, but he was of a nervous temperament. Five or six years ago his health had temporarily broken down from overwork. After this he was worse.

This patient consulted me on a Thursday. He said that on the following Sunday he was to sing in an important concert given by a well-known musical organization. Much depended upon his success, as he hoped, if he sang satisfactorily, to obtain a permanent appointment. I explained to him at length the nature of his psychosis, and the mode of action of the proposed treatment. The following was then written on a piece of paper and given him to learn by heart and to keep constantly in mind:

I know my symptoms are only a group of nervous processes which a long while ago were associated together by a lack of confidence in my ability to sing. But having now this confidence and knowing the nature of the habit, I know this association will be broken and there is no need to apprehend a return of the symptoms.

[1] Read before the Medico-Psychological Society, April 16, 1898.

He entered heartily into co-operation with me in carrying out the plan.

On the following day (Friday) he returned and reported that, after having conscientiously done as directed, the neurosis had not returned, although he had practised as was customary with him. This occasioned him much surprise. On this day it was thought desirable, considering the importance of the test to which he was to be submitted, to emphasize the suggestion by repeating it in the hypnotic state. Whether he was hypnotized or not is probably a question of terms. At most he was in what is called the first stage, — which means that he was quiet, passive, without desire to open his eyes, although he could easily do so.

On Saturday he again returned with the same favorable report, having practised without any return of the symptoms. The treatment was repeated and the whole matter impressed upon him again. Sunday he sang. On Monday he reported that he had sung better (as he thought) than he had ever done before, without being disturbed in the slightest degree by his neurosis. There had been, he thought, a slight tremor of the hands while singing, but he did not consider it of any consequence, and was not incommoded thereby. He was in high spirits over what he considered his remarkable cure.

He wrote me as follows a month later, May 1st, in reply to an inquiry of mine regarding his condition:

MORTON PRINCE, Esq., M.D.,

Dear Sir: In reply to your favor of yesterday. I intended to call, etc. . . .

Now regarding your wonderful cure, for such I regard it: Since I sang for the Handel and Hadyn Society there have been no concerts of any importance only such as had engaged their principals previously, so I have not had a chance to try my newly acquired "nerve" on a large audience, but such singing as I have done has been done with the utmost calmness and fearlessness. I almost felt like saying of myself as is said of a conceited tenor of St. Paul's Cathedral. Being asked at the beginning of the big performance if he was "nervous," he said "yes" — he was nervous for fear his singing would work up the feelings of the audience too much! but not on his own account.

The very feeling regarding a performance is changed — formerly even the sight of a stage or platform would send terror to my heart. Now I can view the performance with perfect composure and I do not think it would bother me much to be suddenly called on to preach or sing or anything else of a public nature. . . .

I am exceedingly grateful to you, Doctor, and if I can add anything of interest to this would be delighted to call at any time and see you.

Yours sincerely,

This letter would imply that he had had real subjective fear, but he evidently referred to the physical manifestations, as I had previously made very careful inquiry into this point. As to the permanency of the cure, I cannot add further information.

OBSERVATION II. Musician, well known and of high reputation.

The symptoms of the neurosis in this case begin about ten minutes before playing, and continue with exacerbations and remissions during the whole time while playing. When they develop they do so with a rush. The symptoms develop in the following order: (1) dryness of the throat; (2) feeling like that of indigestion; (3) hands cold and moist; (4) palpitation; (5) a sort of ataxia or clumsiness of the hands, so that he fails to have complete control over his instrument, in consequence of which he is much hampered in the practice of his art. This is the main reason for asking advice.

In consequence of this ataxia or clumsiness in the movement of his fingers he cannot play as well in public as in private. Upon these symptoms follow certain mental disturbances, which are described as a lack of confidence in his ability to do himself justice, a consciousness of himself and an irritability of temper.

The first time he experienced this neurosis was about fifteen years ago, when he began to be spoken of in public as possessing talent. Before that he had no symptoms whatever, but, on the other hand, had great confidence in himself. Later, when he was the subject of public esteem, he began to think about himself and came to the conclusion that he was not as skilled a player as the public thought. He at once lost confidence, apparently as the result of his own cogitations, and immediately the neurosis developed.

Later, as the result of prolonged work and study, he acquired the desired skill, and with it absolute confidence in his own ability as a musician, but with the return of confidence the neurosis did not subside but persisted. At present the subject is perfectly confident, as he stoutly maintains, of his skill, and insists that he is devoid of any sensation which approximates shyness or timidity.

Now it will be noticed that the symptoms constituting this neurosis in this case also are little more or less than the physiological manifestations of timidity, and yet, as in the preceding case, this patient claims to be absolutely without timidity; hence again we have the paradox of physical manifestations of emotion without the emotion itself.

The genesis of the neurosis in this case would seem, then, to be as follows: Real timidity in the early years of his profession excited the physical manifestations thereof. These by constant repetition and association have become segmented into a neurosis.

This is constantly re-excited by auto-suggestion. Although this is difficult to prove, my reasons for believing it to be the case are as follows: In consequence of the fact that this neurosis has come on so many times in the past and marred his performance, he states that, although he knows as an intellectual fact that he has skill of a high order, he has lost confidence in his ability to play in public as well as he can in private. His performance has been injured so many times that he is always apprehensive it will be injured again. He insists upon this distinction with considerable critical keenness. Consequently for a day before a concert this patient becomes irritable and at times apprehensive, and even when not apprehensive for so long a period before the concert, he is conscious, during a definite period of time before the appearance of the symptoms, of having a strong apprehension or expectation that these symptoms will come on. He always has a definite consciousness or idea that his playing will be hampered at each concert as it has been in the past. Now this is nothing more nor less than a suggestion to himself which may be put in the following words: When I begin to play I shall have such and such symptoms. He begins to play and the symptoms develop at once. This is similar in every way to such a suggestion as might be given to a hypnotized subject, such as, when the clock strikes ten you will arise and go to bed. And just as such a hypnotic subject on

the given signal of the clock striking would carry out what he was ordered to do, so the person affected with neurosis, now being described, experiences just such physical disturbances as he suggests to himself that he will feel at such times and under such circumstances.

This patient, who is intellectually clever aside from his art, tells me that to his personal knowledge, based on conversations with numerous musicians, this neurosis is very common with members of his craft. Many musicians have their performances marred by the affection, and even some of the great violin and piano players of the world are sufferers from it. He instanced to me some whom he knew, who might rise to considerable fame were it not for it, and he insists that they usually state they are not conscious of any feeling like fear or shyness. How far this is true, of course, I can not of my own knowledge say. I am inclined to believe, however, that co-operative immediate excitant is a sort of self-consciousness or egotism which causes such people to become apprehensive of non-success, and the emotion caused thereby helps to excite the symptoms.

Observation III. Another case, residing in the suburbs of Boston, is not that of a musician, but one belonging to another craft.

This person in every other way is perfectly normal, but he has suffered from this affection to such a degree that he has been extremely hampered in the practice of his profession, and to a certain extent in his everyday life. It became, in consequence, a matter of great practical concern as well as suffering. In this case there was present the apparent paradox of all the physical manifestations of shyness without the presence of shyness itself. This person has absolute confidence in himself, recognizes his own ability, but when brought in contact with people under certain circumstances used to be overwhelmed by a neurosis which made it difficult for him either to carry on his profession or to do his part socially in the world.

In the practice of his craft he is obliged to give instruction to classes of students, as well as to lecture before audiences, and particularly to practise his art in the presence of others.

It was at such times in particular that the neurosis developed, although it also appeared under other circumstances. He described it as follows: While in any one of these public situations he would become conscious that people were looking at him; that is, his first sensation would be a marked state of self-consciousness, then with a rush the individual symptoms of the neurosis would overwhelm him. These symptoms would develop in the following order: first, a feeling of *faintness;* then *perspiration* would break out all over him; then he would, as he thought, *change color;* and finally, he would have *confusion of thought.* This confusion of thought would be of sufficient intensity to interfere with the work he was engaged in to a degree almost to amount to prohibition. It should be noted that these symptoms always appeared in this combination and in this order. A point to be emphasized is that these symptoms would come of a sudden, while he was perfectly composed and self-possessed, in the midst of a lecture or while practising his art. The continuance of what he was doing was then a matter of great difficulty and required the exercise of all his will power, which in turn was extremely exhaustive. To these symptoms various secondary symptoms now added themselves. Although the latter were distressing and psychologically interesting they need not detain us here, as they were not essential. Depression was one of them. They were important, as they served to redouble his self-consciousness, and thus again, as a consequence, the neurosis increased in intensity. This became actual suffering — not so much from the physical disturbances, for which he insisted he did not care, but because of the false position in which he was placed; that is, because of being thought to be timid and to lack self-confidence, when this was not the case.

The extent to which this subject was hampered is shown by his saying one day that he "would do anything, have his arm cut off if necessary," to be relieved. This patient had fought against his trouble with great pluck, but without success. Without warning, in the midst of a state of well-being, they would come upon him so suddenly that before he had time to think the neurosis would be developed.

Two well-known physicians, an alienist and neurologist, were consulted, but he was told he was only overworked (neurasthenia) and needed rest. But when he returned after a vacation his condition was as bad as ever.

The symptoms of this neurosis may now be recapitulated as follows: (1) consciousness of being looked at; (2) faintness; (3) perspiration; (4) flushing of face; (5) confusion of thought; (6) depression, etc.

It will be observed that the first five symptoms are the physiological manifestation of emotion.

A careful physical and mental examination of this patient revealed to me the following condition of affairs: Physically he was in the prime of health, well-developed and nourished; strong in every way. Probably no one of his friends or associates have ever suspected the existence of his trouble, as in social life he appeared mentally and physically as vigorous as a man could well be. It must not be imagined that he was hypochondriacal or in any way degenerate.

The genesis of the trouble was probably as follows: During boyhood he had been sensitive to ridicule, lacked confidence, and was shy. Or, in other words, at this time the perception of the fact that he was the object of observation by others caused in him the feeling of self-consciousness and lack of self-confidence.

With the emotional state thus produced there then developed the somatic symptoms, or physiological manifestation of emotion as above described. With increasing years and experience, complete confidence in his own ability was gained, and he lost all shyness in the true sense of the word; but, nevertheless, whenever at any time the thought came upon him that he was the object of observation, as in early days, all these symptoms developed at once with a rush, perfectly automatically, without any corresponding emotion. The fact that he felt these disagreeable symptoms made him naturally infer they were observable by others. Consequently he was still further disturbed, as he insisted over and over again, by the thought that others should think him to be lacking in self-confidence when he really possessed it. It was this last idea that produced the secondary symptoms.

It must not be overlooked that the original source of evil, namely, shyness and lack of confidence in his own ability, had long since subsided, and that the emotional-complex had been transferred to the associated idea or fear of other people's belief.

One more consequence should be noted: It finally came about that the fear that these symptoms would

develop in public was sufficient to excite them. This apparently capped the climax and rendered further work exceedingly difficult. As an exciting cause, auto-suggestion in the form of apprehension undoubtedly played a part, as I believe. He was in constant apprehension that when he was placed in certain positions the neurosis would strike him. As already explained in the previous cases, this is equivalent to an auto-suggestion, such as, "When I am acting under such circumstances and such a thing happens, I shall feel so and so." This thing does happen and the neurosis is exploded as an automatic process. When overtired his condition was distinctly worse.

The treatment in this case was based upon the above analysis. The idea of neurasthenia was rejected, and the pathology as above outlined was explained at great length to the patient, who recognized its correctness and lent himself heartily to the new plan of treatment. Without this co-operation I believe this would have been a failure.

My idea was to artificially create in the patient's mind a fixed idea which should comport with the truth on the one hand, and which should be antagonistic to and therefore would inhibit the morbid idea and its consequences. To this end the following was written on a piece of paper:

"These symptoms are only physical processes which by habit have become associated together by a previous pathological mental state. This mental state having subsided, the association will subside and I have nothing to apprehend."

This was later changed to:

"I know I am the equal of the others. These symptoms are only physical processes which by habit have become associated together by a previous lack of confidence in my ability. Having now regained this confidence and knowing that I am the equal of others, this association will subside."

This he was told to learn by heart, and to repeat it constantly to himself on every possible occasion—when he was by himself, and as he walked the streets, the last thing before going to sleep, and especially before undertaking his professional work in public.

The result was decidedly favorable. The psychosis steadily grew less and in a month or two had substantially subsided. Nevertheless, there has been during the past year a tendency to relapse. But the course has been steadily towards improvement, until now his symptoms occur in so moderate a form that he no longer dwells upon them.

[Another year has passed since this was written. Although it is not easy to state with absolute accuracy the present condition of this patient, it is well within the truth to say, from my own frequent observations and the patient's own statement, that although not completely free from trouble, yet when we compare his condition with what it was, as shown by my earlier written notes, he is immensely improved. He is still troubled at times, but the attacks are mild, the secondary symptoms have disappeared, he does his professional work without particular discomfort, and his whole attitude of mind towards his trouble is different.]

Sometimes this neurosis does not occur in a pure form by itself, but forms a group of symptoms superimposed upon and complicating another disease of a different nature, perhaps true neurasthenia. For example, I have under observation now a young man who is a neurasthenic of probably a degenerate type, and therefore in certain respects incurable. In him certain habits of mind and certain peculiarities of body can be recognized, which are undoubtedly due to degenerative processes. Besides symptoms of neurasthenia he exhibits in a very neat way this phobo-neurosis. When brought face to face with people, particularly women, though the same may happen with men, he has a peculiar set of sensations which develop in the following order: (1) a feeling of shyness or confusion; (2) the face flushes; (3) confusion of thought; (4) feeling of general weakness.

Some palpitation occurs during the attack, but its exact position in the order is uncertain. In extreme attacks, ataxia or clumsiness of gait is added to the above.

These symptoms are of such intensity as to be a matter of considerable suffering and to cause the patient to make many sacrifices for relief. They come on with a rush or suddenness which does not allow for thought, and all the circumstances under which this occurs allow of no doubt of the independent automatism of the neurosis.

AN UNUSUAL FORM OF BRONCHIECTASIS.

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CERTAIN features of the following case will be seen to differ markedly from those commonly met with in this affection:

Wm. Mosler, age forty-four, laborer, was admitted to the County Hospital March 25, 1897. He gave the following history: At the age of twelve he had "pleurisy." At eighteen he began to suffer from asthma, which continued off and on in a mild form until twelve years ago, about which time he came to Colorado. It then ceased, and he has since been perfectly well, without cough or other evidence of his former trouble.

His present illness began three months ago as a pain in the region of the left nipple which lasted two hours and was very severe. This was followed immediately by a cough, which still continues. Expectoration was moderate at first, and for a day or two reddish in color; later it became purulent, increased in quantity up to a pint in twenty-four hours, its present amount, and almost at the outset, he thinks, became offensive in odor. He has not at any time been confined to bed. He speaks of chilly sensations at the first, but does not think he had either fever or dyspnea. He now weighs one hundred and twenty-five pounds and says his loss of flesh has been very moderate.

At the present time his chief complaint is cough, abundant fetid expectoration, soreness in the region of the left nipple, and some general debility.

The *Physical Examination* shows a man of medium size, rather poorly nourished, facies pale and somewhat phthisical in appearance. Cough almost constant, with frequent raising of a purulent and very offensive sputum, necessitating isolation. Patient is up and about; his pulse ranges from 95 to 100, respirations 22 to 28, and temperature normal to 101°, there being daily a rise of at least one degree.

The chest presents nothing abnormal on inspection or palpation. Percussion discloses a peculiar condi-

tion: Just outside the precordia, occupying the angle between its left border and the lower margin of the lung, is an area the size of an orange, which is flat in the erect posture and changes to slight tympany when the patient is on his back. Over this area there is friction. Respiration here is somewhat bronchial, and accompanied by scattered moist râles, especially for a short distance above and to the outside of the dull area. The voice sounds also bronchial, and there is distinct whispered pectoriloquy. The lungs are otherwise negative and the heart is normal. On examination the abdomen gives also negative results.

These local signs in the left lung were so plainly indicative of a cavity containing both fluid and air that the diagnosis seemed at once restricted to a very few conditions. Phthisis seemed presumptively excluded by the location, and still more by the concentration, so to speak, — the non-diffusion — of the signs; and, indeed, a later examination of the sputum for bacilli was negative. For gangrene the pain had not been sufficiently intense nor had the course of the affection been sufficiently acute and grave. The same might be said of a pulmonary abscess, although here the ground did not appear to be quite so safe. Bronchiectasis seemed hard to reconcile with the sudden origin, the absence of general bronchitis, and the limitation of the process to one side and apparently to a single cavity. The affected area lay close to the interlobar septum; and I was therefore, by exclusion, led to think that an encapsulated interlobar empyema had barely reached the surface when it had ruptured into a bronchus, become infected, and thus furnished the source of the foul pus which had since been so constantly discharged through the mouth.

On this hypothesis I made an exploratory puncture in the fifth space about one inch outside the main line, and obtained a small amount of very offensive pus. Operation was at once advised, and on the following day, in my absence, the man was anesthetized, and another exploratory puncture made as a preliminary to operation. No pus could be found, even on repeated trials, and the case was referred back to me. On the following day I again made several punctures with negative results, and the man then absolutely refused any further operative procedure.

Strange to say, he shortly afterward began to improve. He steadily gained flesh, and on October 4th his expectoration had diminished to ten ounces in twenty-four hours. Careful examination at this time failed to show any sign of the previous trouble except a small area of bronchial respiration, the size of a dollar, attached like a wart to the outer and upper segment of the precordia. In the "angle" there was no dulness, and the respiration was clear vesicular.

I did not see the patient again until January 1, 1898, three months later, and ten months after he had first come under my care. He had in the meantime continued to improve and had become a hospital "helper." Two days ago, however, while coughing, pain had suddenly appeared in the lower *right front;* and with this the amount of expectoration had suddenly increased from four to sixteen ounces. Physical examination of the chest now disclosed the following condition: *Left Front:* — No remains of the original trouble except slightly broncho-vesicular respiration at site of former pericardial excrescence. *Left Back:* — Very few moist râles in mid-scapular region. *Right Lung:* — Numerous moist râles through lower third, front and back. Friction in region below right nipple.

One month later the physical signs had become concentrated about the lower right front and axilla, and bore a marked resemblance to those originally found on the left. There was a zone of flatness about two inches wide, continuous with that of the liver and bounded above by a slightly curved line extending from near the nipple to the line of the angle of the scapula. Over this zone respiration was distinctly bronchial — almost amphoric — and there was distant whispered pectoriloquy. Vocal fremitus was diminished but not absent. There was no tympany, and hence, of course, none of the Wintrich signs of cavity. For a short distance above the flat area there was slight dulness and a few moist râles. At least the upper half of the lung was absolutely negative.

These signs remained unaltered until the man's death, from a pulmonary hemorrhage, on May 30, 1898, fourteen months after he entered the hospital. The only local change which occurred was a very slight increase of the flatness upward and toward the spine. The heart had continued practically normal; and there was never any enlargement or downward displacement of the liver. The general condition had shown a steady decline from the time, in January, when the signs in the right lung had first been discovered. There were no chills, but an irregular though steady hectic, together with the constant drain from the lungs, had produced a very considerable degree of weakness and emaciation when the final catastrophe came.

On two different occasions several exploratory punctures were made over the flat area with negative results.

Before stating the results of autopsy, it is to be remarked that the difficulties of diagnosis in this case were very great. It was, of course, quite evident with the right lung, as earlier with the left, that we had to deal with some sort of cavity or cavities communicating with the bronchi. But what sort of a hypothesis was consistent with an apparent cure of the condition which had first appeared on the left? The original thought of interlobar empyema, or possibly pulmonary abscess, seemed inadequate to explain a secondary and similar involvement of the right lung; experience tells us that such does not occur. Hydatid was considered, but the condition is extremely rare; there was but little pain and even the slightest positive evidence was wanting. Bronchiectasis, while not dismissed from consideration, was very difficult to reconcile with the history of acute onset, the relative recovery of the part first affected, and the subsequent invasion of the right lung.

Autopsy disclosed the following pulmonary conditions: In the lower part of the interlobar fissure of the left lung was a small quantity of cicatricial tissue, evidently the result of a former pleurisy. Following this up led to a cavity, situated close to the fissure in the lower part of the upper lobe and about as large as a small egg. It was collapsed, wholly empty, and communicated directly with a somewhat dilated bronchus. Its walls appeared to be extremely thin and were uninflamed. With the exception, perhaps, of a very slight injection of the bronchus leading to this cavity, the left lung was normal.

In the right lung the changes were more recent and profuse. The upper half was negative except a small isolated cavity, the size of a walnut, lined with a thick

membrane and containing pus. The lower half, on the contrary, was riddled with cavities varying in size from a chestnut to a small egg. The shape of these cavities was in the main saccular, and many of them had a wide communication with a bronchus. In a general way they resembled the cavity found upon the left, except that the walls were more inflamed, and they contained usually a considerable quantity of offensive, muco-purulent secretion. The surrounding lung tissue was comparatively uninvaded; the absence of tuberculous or cheesy masses was especially noted, although there was, perhaps, around some of the cavities a slight pneumonic infiltration. In a general way the cavities presented the peculiar appearance of being scooped out of comparatively healthy lung. They were most numerous and largest at the extreme base in front — in the middle lobe — corresponding to the situation *intra vitam* of the most prominent physical signs. Throughout the affected portion there was a considerable degree of acute bronchitis without marked chronic changes in the thickness of the bronchial walls. The heart and other organs were relatively normal.

Let us attempt a brief analysis of this case, which is exceedingly instructive with reference to the clinical history of bronchiectasis. It certainly discloses features of this disease which differ decidedly from those generally accepted, and it is here to be especially emphasized, as being of the greatest importance in the interpretation of the case, that the history of onset given above is to be accepted as reliable. The patient was a man of more than ordinary intelligence, and the history was taken first by the interne and later, with great care, by myself. A persistent cross-questioning failed to alter in any way the statements originally made.

We find, then, an acute onset of pain, cough, and abundant fetid expectoration in a man previously well, and — what is particularly to be noted — absolutely free from any cough whatsoever. Signs of a cavity soon develop in a circumscribed region of the left chest, persist for two or three months, and then gradually disappear; at the same time there is a marked general tendency toward recovery, and a great diminution in cough and expectoration. Several months later the right side suddenly becomes affected in a similar way, the old symptoms return, expectoration again becomes exceedingly fetid and abundant, and after three or four months of sepsis with steadily increasing exhaustion, the case terminates fatally by a pulmonary hemorrhage. Corresponding to this clinical course the post-mortem shows a large quiescent bronchiectasis on the left, and on the right numerous bronchial dilatations in a state of active catarrhal inflammation.

Assuredly these bronchiectases could not have originated in a few days, or even a few weeks. They must have been of long standing and slow development, already at least partially formed at the time of the original acute attack. This latter I conceive to have been an acute inflammatory process, involving the pre-existing bronchiectatic cavity, and particularly the surrounding pulmonary tissue. Hence the pain and reddish sputum at the outset, the pleuritic friction, and the suddenly increased activity of bronchial secretion. An explanation, also, of the abrupt development of cavity signs is not far to seek. A collapsed cavity in normal lung tissue may give little evidence of its presence; the same cavity dilated by abundant secretion, surrounded by a consolidated lung, and perhaps thus provided with smooth and rigid walls, will present conditions favoring the production and transmission of abnormal sounds.

This inflammatory process then gradually subsided. The cough and expectoration diminished, the local signs disappeared, and the *status quo ante* was again restored. Unfortunately, however, the same process was repeated in larger measure in pre-formed bronchial dilatations of the opposite side, and an accidental hemorrhage produced the fatal result which otherwise would probably have occurred later from sepsis alone.

The chief lessons to be drawn from this case are, first, that bronchiectasis may be wholly latent, and second, that the symptoms which it often produces — chiefly cough and abundant fetid expectoration — are susceptible of spontaneous cure.

In the first place as regards latency: The conception of the bronchiectatic process as latent, and hence essentially primary, is certainly not a commonly accepted one. We usually think of it as either obstructive, where there is some local mechanical obstruction of one or more large bronchi; or tractional, as in a fibroid lung; or inflammatory, as where, from a long-continued bronchitis, the bronchial walls become gradually relaxed and eventually distended. A primary, slow, relatively benign, and wholly latent development of saccular dilatations of the bronchi in the midst of healthy lung tissue strikes one at first as a strange idea.

It is, however, not new. In Vol. VI of the "Twentieth Century Practice of Medicine" may be found an admirable description of primary bronchiectasis, by Stewart and Gibson, together with a complete historical review of the subject. It is there shown that Briquet, Dittrich and Barlow had observed apparently primary bronchial dilatations, of saccular character, previous to a more complete study of this form by T. Grainger Stewart in 1867. Stewart then maintained and still holds the opinion that these cases of bronchiectasis are often the result of a *primary atrophy* of the bronchial walls. Leroy, also writing in 1879, and apparently unacquainted with the article by Stewart, advanced the same view. The cause of the atrophy itself is admittedly obscure, and is referred to in a general way as a constitutional peculiarity.

A few quotations from Stewart and Gibson concerning the clinical history of these primary cases will be of interest: "In many, if not all, of the cases the affection comes on insidiously, no symptoms appearing to attract the attention of the patient or his friends perhaps for long after the dilatations have been formed. But gradually or suddenly inflammation of the bronchial mucous membrane is lighted up." After decomposition of the secretion, "The patient's history is now one of intermittent cough, with fetid sputum and breath. He becomes liable to severe febrile disturbances due to a septicemia from absorption of the products of decomposition, which attacks may be recovered from under treatment, or may prove fatal, or the decomposition of the secretion may be followed by inflammation and consolidation of the lung — a septic pneumonia; sometimes also by ulceration, abscess, or gangrene." "Sometimes death results from exhaustion induced by the constant discharge of sputum." "Barth met with two cases in which hemoptysis proved fatal, and we have met with similar cases."

In the case reported by the writer it is of course possible that the atrophic dilatations of the bronchi had some relation to the preceding history of asthma. It is, however, to be considered, that the patient had suffered neither with asthma nor bronchitis for twelve years previous to the acute onset of his present disease.

As regards the second point of interest — the spontaneous recovery from the first attack — I can conceive no other explanation of the marked improvement in general condition and the great diminution of cough and expectoration which took place, together with the recession of local signs, and particularly the post-mortem appearance of the bronchiectatic cavity. The latter was so collapsed, and the surrounding pulmonary tissue was in so normal a condition, that, much to my chagrin, the lung, after numerous sections, was pronounced negative. Confident however, that there must be something to show for the pronounced physical signs which I had heard, I followed up the septum and finally came upon the collapsed cavity described in the report.

The rarity of any spontaneous cure of bronchiectasis must be very great. Guitrac (quoted by Stewart and Gibson) speaks of two ways in which cure has been known to take place: one by cretifaction of contents, the other by discharge through the thoracic wall. Stewart and Gibson, however, have never met with any such cases, and regard recovery as extremely infrequent. My own case would seem to indicate that nature does work in the direction of at least relative recovery, and this must be regarded as very encouraging toward therapeutic efforts. The chief special medication in the case reported was large doses of the hyposulphite of soda, of which two drachms to half an ounce was taken daily, considerably diluted in syrup and water. There was certainly an almost immediate effect in diminishing the odor of the sputum; indeed during the first attack it entirely disappeared. Whether or not this treatment had anything to do with the temporary recovery is questionable.

TUBERCULAR CYSTITIS IN CHILDREN.[1]

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Although tubercular cystitis is more frequently met with in young adults, a number of cases have been reported in children during the past few years. The genito-urinary organs in children being in a rudimentary state of development are invaded with difficulty by the infectious agent of tuberculosis, but this is not the only reason for the infrequency of reported cases. The symptomatology of tubercular cystitis in children is often so masked that the attention of the physician is not directed to the condition of the bladder, and I am of the opinion that if microscopical and bacteriological examination of the urine of children were more frequently resorted to urinary tuberculosis would be more often discovered in little patients.

All the causes attributed for the development of vesical tuberculosis in the adult may be applied to the child, such as acute infectious cystitis, the extension of an infection of the genital organs to the urinary tract, and explain why tuberculosis of the bladder is infrequent in children.

In young subjects, as is the case with adults, tubercular cystitis is either primary or secondary. When secondary it is more particularly due to tubercular lesions in the lung, but it may develop from a coxitis or adenitis. The primary form is seen in children born of apparently healthy parents, and its appearance is in the form of urinary disturbances that are often very misleading.

Our personal experience with tubercular infection of the bladder in children is limited to a single case which is here briefly reported.

Miss M. G., age eleven, was seen in October, 1896. She was the only child, born of healthy parents, both being alive, and had always enjoyed the best of hygienic surroundings. As a little child the patient had always been well excepting for measles at the age of four, and scarlet fever at seven. In neither of these affections had there been any renal or vesical complications, and the catheter had never been used. For the four months previous to our first visit the patient complained of a frequent desire to micturate, and this increased to such an extent that at our first visit she was going to the bath-room about every fifteen minutes. During the last six weeks the desire to pass water was complicated by a burning sensation at the time of micturition and following the act, and so intense that the child would cry out with pain. Strange to say, sleep was fairly good; every two or three hours there was a demand to empty the bladder. At the same time the appetite diminished and a yellow leucorrhea appeared. The bowels were regular. Exercise seemed to increase the pain, but riding appeared to have little effect. The tongue was clean, the pulse was 80, and at no time did the thermometer register above 37° C.

Examination of the thoracic and abdominal viscera was negative; the child did not cough; there were no night sweats, and there had never been a rhinitis nor discharge from the ears. No enlarged lymphatic glands could be found, and a careful inspection of the throat showed that the tonsils and pharynx were in normal condition.

On account of the severe bladder symptoms we decided to examine the bladder and kidneys. Ether was given and after complete narcosis the abdomen was carefully explored, but no enlarged spleen or kidneys could be felt. The bladder could be palpated low down behind the pubis and its walls appeared rather thickened. A small Kelly's bladder speculum was then introduced. The trigonum was very hyperemic, the ureteral orifices were normal. Two small and superficial ulcerations, each about the size of a split pea, were seen; their borders were rather irregular, and they had a dirty yellow surface. The fundus of the bladder was somewhat hyperemic, although not very much so, and along the course of some of the vessels a few small pearly-colored points were present, having all the characters of tubercles. The urine was cloudy and slightly acid in reaction when voided, and muco-purulent deposit settled at the bottom of the tube after standing. This deposit was stained for tubercle bacilli and a few were found without much difficulty.

Four different samples of urine removed by a sterilized glass catheter into sterile tubes were inoculated into guinea-pigs; all four animals presented a well-

[1] Read by invitation before the Danbury, Conn., Medical Society, November 2, 1896.

marked tubercular peritonitis at necropsy a few weeks later.

The small ulcerations were cauterized five times with a 60-per-cent. solution of lactic acid at an interval of one week, and 20 cubic centimetres of an iodoform glycerine emulsion at 15 per cent. were injected, and allowed to be retained until expelled by the bladder, every four days for seven weeks.

The patient was placed upon cod-liver oil and a diet of milk, eggs and meat, and during the first ten days of treatment the following pill was taken at bedtime to relieve the dysuria:

℞ Ext. belladon. 0.01
Ext. hyoscyam. } āā 0.03
Ext. stramonii }
Ext. valerian. 0.06
M. F. pil. D. tal. dos. No. XX. Consp. pulv. liquirit.

At the end of four months the local condition was greatly improved, the symptoms were far less severe, and it was then thought best to send the patient to a proper climate. She went to the Bermudas and returned late in the spring.

In May, 1897, we again saw the patient, and cystoscopic examination failed to reveal any trace of the ulcerations other than two small star-shaped cicatrices. The fundus was still somewhat hyperemic, but no tubercles were observed. The general health was good, and the patient had gained about eleven pounds during her sojourn away.

Microscopical examination for tubercle bacilli was negative, and a guinea-pig inoculated with the urine remained well, and ten weeks later, when killed, showed no trace of any lesion of the peritoneum.

Here is a case, it seems to me, where the entrance of Koch's bacillus into the economy remains a mystery. The tonsils, which I consider a very frequent point of inoculation, were normal, and no trace of any other focus of the disease could be detected. What this child may develop in the future we cannot predict, but at least for the time being she is free from any process within the bladder.

If we consult the leading text-books, such as "Guyon's Lectures," Zeulzer and Oberländer, von Antal, Desnos, or the "American System of Genito-Urinary Diseases," we find that practically tubercular cystitis may be divided into three groups of symptoms, namely, disturbances of the micturition, changes in the urine, and the physical signs.

Disturbances of the micturition are the first to appear. Gradually, without any known cause, or in a subject having some tubercular lesion, micturition becomes painful, difficult, and at last is accompanied by severe pain which lasts for a time after emptying the bladder, or may even be continuous. Pain is hardly ever wanting, and it is precisely its intensity that is a diagnostic feature of tubercular cystitis in the greater number of instances of the affection.

Under the influence of the tubercular lesions the muscles of the bladder contract and give rise to retention of urine from spasm of the vesical neck, or, on the other hand, this latter portion of the viscus is destroyed by a process of ulceration and then incontinence results.

Now, a *true* incontinence or retention of urine is not always met with in tubercular cystitis in the adult; we may have a *false* incontinence and pain, both of which are the first symptoms present, and they are always well marked.

Examination of the urine at the beginning of the affection will only reveal a clear polyuria, but pyuria soon occurs, the purulent matter being voided more particularly at the end of micturition. Hematuria, which is frequent at the onset, may be present during the entire course of the disease, but at irregular intervals and in small amount. For a time it may be absent and then suddenly recur. Search for Koch's bacillus in the urine should never be neglected, and it will often be found.

Consequently, we may say that *pain*, *hematuria* and *pyuria* are the principal symptoms of tubercular cystitis in the adult, at least in the primary form of the affection, because in advanced cases of pulmonary tuberculosis the lesions in the bladder are often overshadowed by the poor general condition of the patient.

In children, tuberculosis of the bladder does not present any such distinct array of symptoms, and usually one symptom alone indicates the presence of the disease, and for this very reason a number of cases are often not recognized.

The symptom that is the most prominent in tubercular cystitis in children is certainly incontinence of urine. But in this affection, both in adults and children, we have several kinds of incontinence, as we have above remarked. In the first place, there is a *true* incontinence, where the urine escapes without producing any desire to micturate. When present, this form of incontinence is due to a certain amount of destruction of the neck of the bladder by an ulcerative process. The breaking down of the diseased tissues destroys the prostatic region, and the urine accumulates in the cavities thus formed; from these it trickles into the membranous region, which will retain it if the urethral sphincter is still intact, but if the muscle is destroyed or paralyzed by the tubercular process the urine will escape and cannot be retained.

Tubercular inflammation may paralyze the action of the sphincter to a certain extent, especially if the muscle is congenitally weak.

A false incontinence varies in nature. Sometimes it is simply a micturition from overflow, in which case *it is not* an incontinence but is a retention, and is met with in certain painful forms of cystitis. The neck of the bladder is closed by spasm, and from this a more or less complete retention will result.

Now a real false incontinence is what is particularly seen in children, and is in reality a frequent and very ardent desire to pass the urine. Even in adults when the desire to urinate occurs the patient may not even have the time to get to the bath-room and voids the urine in his clothes, and it can readily be understood that under these circumstances children, who are less reasonable than their elders, will micturate in bed at night and in their clothes during the day. But all the forms of incontinence may be met with in children, and in some cases the urine dribbles out drop by drop, and when the patient is asked to urinate into a glass only a small amount can be voided or even none whatever.

The escape of urine is voluntary, because the patient can be made to retain his urine in the bladder for a few minutes. It is in reality a false incontinence, the desire to urinate is present, but it is imperious and, being constantly present, the child cannot resist it.

In some instances there is nocturnal incontinence and during the day there is simply a frequent and painful desire to micturate. The bladder being irritated by the tubercles contracts frequently as soon as

urine collects, but there is no paralysis of the sphincter. In no case that I have found reported has incontinence been due to a destruction of the neck of the bladder by tubercular ulcerations, as is so frequently found in adults.

The lesions are scattered, and when an abscess opens there then form small, superficial ulcerations which cannot destroy the urethral sphincter. Necropsies have clearly shown that the neck of the bladder is a favorite seat for tubercular lesions, and the same may be said of the deep urethra. When the infection of the bladder is secondary to that of the kidney the ureteral orifices will present pathologic changes, or small ulcerations will be found near them. When there are lesions in the deep urethra spasm will result.

Incontinence from overflow may also be observed along with a more or less complete retention, this being due to spasm of the urethra. The spasm in tubercular cystitis indicates, just as it does in other forms of cystitis, that there is a severe hyperemia of the neck of the bladder, due to the presence of tubercles or ulcerations in this region of the organ.

In children, as we have said, incontinence from pollakiuria is the most prominent symptom of tubercular cystitis, but hematuria, pyuria and pain may also be present, and we will now consider, in a few words, each one of these symptoms.

Pain varies in different cases, and often is wanting, or at least appears to be, because we must be careful not to be misled on this point, for little children cannot tell us exactly what they feel. Severe pain will make them cry, while they do not pay much attention to little dull pains or burning sensation, as would the adult. It may, however, be said that pain sufficient to make the child cry is never so persistent that sleep is entirely prevented.

Hematuria appears to be an infrequent symptom in tubercular cystitis in children, and does not show itself at the beginning of the trouble as it does in adults. Pyuria, on the contrary, is important in little ones, and Guyon has insisted upon the necessity of a careful analysis of the urine, because if it contains pus the incontinence present is not due to a neurosis.

Consequently, in both children and adults, the urine in tubercular cystitis is most always purulent, but it is so in varying degrees, but in rare exceptions it may remain perfectly clear and is passed in large quantities, — a fact that may cause much difficulty in diagnosis.

In all cases of suspicious cystitis a careful bacteriological examination of the urine should be carried out. The microscope will reveal pus cells and red blood corpuscles, while chemical analysis will often show the presence of albumin due either to the pus or to lesions of the renal gland.

The search for Koch's bacillus will often be negative, but should be often repeated, and finally we can perhaps discover the organism, which when found will settle all doubts as to the nature of the affection. Inoculation of the pus contained in the urine, or the urine itself, into animals, especially the guinea-pig, should always be resorted to, and the presence of the specific bacillus may thus be demonstrated when the microscope and culture-tubes have remained negative. One inoculation is not enough, and several animals must be employed, each one receiving a different sample of the urine.

As to cystoscopic examination I would say, that in my experience tubercular ulcerations have nothing that one could call typical. They may be small or large, round or irregular in outline; their borders may be elevated; or, on the other hand, no induration will be found in their neighborhood. Their surface may be clean or covered with a secretion or by salts from the urine. Tubercles are to be found scattered along the course of the blood-vessels and are easily recognized as small pearly points, and which have been well figured by Casper of Berlin in his recent and excellent work "Handbuch der Cystoskopie" on Plate IV, Figure 15 (Leipzig, 1898).

It is hardly necessary for me to say that a complete examination of all the other viscera should be made, and often we will find an active or latent focus of tuberculosis in some other organ. Of course in small boys the testicle and prostate are not likely to be invaded by the process on account of their rudimentary state of development, so that no information can probably be gathered from the condition of these organs.

Primary tuberculosis of the bladder in children is, if we may judge from reported cases of the affection, relatively good in its prognosis, and generally, with proper treatment and change of climate, the symptoms will disappear,— at any rate for quite a time. The affection remains localized, and although cases are recorded in which the lungs became involved, a tubercular cystitis has in the young a marked tendency to get well.

In childhood other tubercular lesions have this same tendency, such as coxitis, even when there is suppuration in the joint, while such a condition in an adult would be very serious. Other tubercular lesions disappear, such as abscess of the lymphatic glands, arthritis, conjunctivitis or rhinitis.

The diagnosis of tubercular cystitis in the child is not always an easy matter, and may even be overlooked. The frequent absence of pain, especially in the early stage, hematuria and the excellent general condition of the patient when the bladder is the primary seat of the infection, will mislead the physician as to the nature of the symptoms present.

Incontinence of urine in childhood being the chief, if not the only, symptom of cystitis in general and the tubercular form in particular, we should study the type of incontinence present in a given case. When a child presents an incontinence it may be the first symptom present of a general tuberculosis which will undergo its evolution at a later date, and simply indicates that there is an active focus of the tubercles in the urinary reservoir.

A repeated examination of the urine will show the presence of a cystitis and in order to obtain a sufficient quantity the catheter may have to be employed. The urine always shows pathologic changes in tubercular cystitis, while in nocturnal incontinence due to a neurosis it is always perfectly limpid.

In tuberculosis of the bladder, both in children and adults, the urine contains a quantity of small filaments or grumous matter, which falls to the bottom of the glass after standing, forming a rather thick purulent or muco-purulent deposit. The urine above this will be found perfectly clear if the bladder alone is the seat of the disease, but when the kidney is involved in the process the entire bulk of urine will remain cloudy no matter how long it may stand. In some few instances a little blood or a few clots are to be found.

The urine will be found acid in reaction in tubercular cystitis unless some mixed infection has taken place, and the same may be said of the cystites due to the bacterium coli, so that no differential diagnostic help can be gained, but the rapidity of growth on culture media of the latter organism will quickly put an end to any doubt as to the nature of the bladder infection.

All the symptoms above mentioned indicate that there is a cystitis present, but the nature of the lesion is often difficult to decide. Exploration of the bladder will quickly eliminate calculus or neoplasms of the organ, which frequently give rise to cystitis in young people. Neoplasms, and papillomata in particular, give rise to repeated and profuse hematuria, which appears and disappears suddenly.

The infectious origin of a chronic cystitis now remains to be discovered. The gonococcus is not apt to infect children's bladders, but the bacterium coli is certainly a potent factor of vesical inflammation in both adults and children, more especially female subjects, and I have notes of several cases in which this organism was the cause of chronic cystitis in children.

In considering a case of cystitis in a child we should recall two diagnostic points which have much importance, namely, the absence of any distinct cause for the bladder trouble and any unusually long duration of the affection. Guyon has rightly said, "A spontaneous cystitis is about the same thing as a spontaneous bronchitis, and both should bring to mind the question of tuberculosis," and we would add that when the cystitis persists in spite of a well-directed treatment we should suspect the beginning of a tubercular process within the bladder as probable.

If lesions are found in the bladder we must next ascertain if the kidneys are not also involved, and consequently a careful palpation of the renal glands is necessary. Certain pathologic findings in the urine, such as a cloudy polyuria or renal casts, indicate that the kidney is infected.

The treatment of tubercular cystitis is general and local, but as the disease in children has a rather good prognosis when it is primary, no surgical interference is to be considered unless other milder measures prove useless.

Cod-liver oil, creosote and tonics are of value, and iodoform in the form of a pill is highly recommended by Guyon and Reverdin. Locally an iodoform or guiaicol emulsion is to be injected into the bladder and retained until expelled; theoretically they are of value, and practically have proven their excellent curative action. The ulcerations may be cauterized and curetted if they be extensive. Being aware of the favorable results obtained from local applications of lactic acid in tubercular laryngitis, we were led to experiment with this agent in the bladder, and the results obtained in the case here reported would appear to indicate that further use of this substance is justifiable.

The indications for suprapubic cystotomy vary according to the end to be obtained. If it is done to bring about a radical cure it should only be performed in cases of *primary vesical tuberculosis* and then we can expect much from drainage of the bladder. The ulcerations can be directly cauterized with the thermocautery or even excised through the opening.

When this operation is done as a palliative treatment, — that is to say, when other foci of the disease are present and the cystitis is secondary, — the relief from pain that the patient will obtain is quite enough to justify its performance.

To sum up, we may say that a primary tubercular cystitis in children is curable when the lesions are not advanced, and that if general treatment and local applications do not show any effect on the process after a reasonable trial suprapubic cystotomy is the operation of choice, and will be followed with as good results as those obtained by it in the adult.

Clinical Department.

A CASE OF NECROSIS OF THE MASTOID WITH SEPTICEMIA AND GANGRENE OF THE LUNG; OPERATION; RECOVERY.[1]

BY PHILIP HAMMOND, M.D.,
Assistant in Otology, Harvard University; Clinical Assistant, Massachusetts Charitable Eye and Ear Infirmary, etc.

C. S., a schoolboy of sixteen years, was brought to the Aural Clinic at the Massachusetts Charitable Eye and Ear Infirmary on June 27, 1898, in a very weak condition.

He had a history of frequently recurring earaches since childhood. Three years ago he had a bad pain in his right ear, since which it has discharged continually. There had been no recent pain in this ear until a week before his appearance at the Infirmary, when he experienced severe pain following a cold contracted a few days previously.

Tenderness and extreme pain over the right mastoid and side of head soon developed, and with these symptoms a feverish condition set in. Three days after the first onset he had a severe pain in the top of his head, together with some dizziness. The next day he had three chills, one of them quite severe, and on the following day he had nausea and vomiting, with dizziness, which still persisted at the time he presented himself for examination.

There was a very foul suppurative discharge from the ear, and when this had been cleansed out a large destruction of the tympanic membrane was visible. The region over the mastoid antrum was extremely sensitive to pressure, and there was marked tenderness over the region of the jugular. On examination the eyes proved to be normal, there were no cardiac or renal disturbances, and a careful count showed the blood to be in a normal condition.

The boy was immediately prepared for operation, and that same afternoon I opened his mastoid in the usual manner. The tissues were not very thick over the bone, and the surface of the bone was rather rough and bleeding. The cortex was opened by means of gouge and mallet. The bone was everywhere inflamed and bled freely. The mastoid cells were almost entirely destroyed, and the resultant cavity filled with a greenish, foul, cheesy material. This was removed by the curette, establishing a direct communication with the antrum.

While curetting in the depths of the mastoid at about the level of the antrum the instrument entered the lateral sinus, and on account of the hemorrhage the operation had to be stopped. The cavity was packed with iodoform gauze, and over this a heavy aseptic gauze dressing was applied.

[1] Read before the Middlesex East District Society, August 31, 1898.

The patient recovered from the ether well, and the wound bled into the dressing but little. The day following the operation he had two chills, one at 1 P. M., the other at 6. The temperature varied from 101° to 103°, and he took his nourishment poorly.

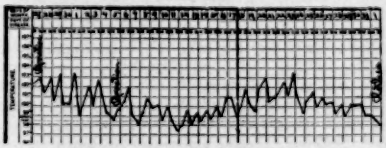
The second day following the operation the patient had another chill, with a rise in temperature to 103°. The dressing was removed from around the meatus, but the packing in the sinus was not disturbed. There was a slight but very foul discharge from the meatus.

On June 30th, the third day after the operation, all packings were removed. There was no bleeding, and the sinus was distinctly seen to be pulsating.

The wound was dressed daily after this, and gradually improved in appearance, but as regards his general condition the boy became worse. There were frequent chills, and an intermittent temperature.

During the next few days there developed a marked tenderness of the neck on pressure, apparently rather nearer the median line behind than over the jugular, and on July 2d a slight swelling was noticed beneath the mastoid. This increased during the two succeeding days, until on the 5th there was decided swelling over an area beneath the mastoid tip as large as the palm of one's hand.

On consultation with Dr. Clarence J. Blake it was deemed advisable to operate at once. Accordingly the boy was etherized, and because of the condition in which it had been necessary to leave the bone at the



former operation on account of the hemorrhage from the sinus, I curetted the antrum and roof of the mastoid thoroughly, to be sure that there was no remaining spot of caries to infect the meninges, before attempting to do anything near the sinus or abscess cavity.

On careful examination the sinus was found to be soft, and apparently contained no clot. There was no spot of caries posteriorly connected in any way with the swelling in the neck. A probe was next passed downwards and backwards from the mastoid, opening through the superficial tissues into the swollen area, revealing the presence of pus. The probe was passed across the crater of the abscess to the most dependent portion, where a counter incision was made.

In all, about two ounces of pus was evacuated. The cavity was carefully curetted, much granulation tissue being removed, and finally a drainage-tube was inserted.

This wound was dressed daily, and the patient's general condition improved greatly during the next two weeks.

About the middle of July he began to have a slight but persistent cough, which gradually grew worse. Examination of the lungs was negative until July 19th, when a patch of moist râles appeared in front of the left shoulder, and running under the arm. Examination of the sputum gave a negative result. The wound steadily improved from the date of the second operation. On July 19th the lower end of the drainage sinus was clean and nearly closed, the mastoid wound was in good condition, and the ear nearly dry. On this day it was noticed that the breath had a fetid odor.

On July 23d the record states that cough had been persistent, and there had been a rising temperature. There was dulness over the left side from the third rib down, with decreased voice and respiration sounds, and a few râles. There was a very foul odor to the breath. The mastoid wound was nearly dry. By the last of July the boy had been gaining in strength daily. In the left lung under the axilla, and in front at the same level, were dulness, decreased voice and respiration sounds, and a few râles. On coughing a fetid purulent sputum was produced, with very foul odor.

The case was examined by Drs. Mixter and J. L. Morse, both of whom pronounced it gangrene of the lung. The area involved was probably about three inches in diameter. They both agreed, however, that he would do as well under medical care as in any other way, and events justified this decision.

By the first of August he was able to sit up every day, and during the next week the mastoid wound healed in from the bottom very rapidly.

At the time of his discharge from the Infirmary the wound had all healed but a superficial granular spot, and there was but a slight discharge from the ear. The record states, "the cough is not so marked, nor the odor so fetid. Sleeps very well, and in every way the patient's general condition seems better."

He was discharged from the house on August 7th and was followed in the out-patient department during his convalescence. On August 17th he was entirely well, and he has written since that date saying that his health is in excellent condition and that he is not bothered by cough at all.

It is evident that we have had to deal here with a case of severe septic infection from the primary disease of the ear, with at least two foci of metastatic abscesses, for as such I look upon the superficial abscess of the neck, and the purulent condition in the lungs. When I first saw him I thought from his septic appearance that he probably had a purulent thrombus in the lateral sinus, and such was also the opinion of my colleagues. Believing this, I had intended to remove all caries from the mastoid first, and then tap the sinus with a trocar, to see if the flow of blood was obstructed in any way. Of course, in opening the sinus as I did I dispelled all doubt as to the presence of a thrombus, and I am inclined to think that his septicemia was due to general absorption.

It is true that by establishing a direct communication between his sinus and a purulent cavity an extra avenue for the entrance of germs into his system may have been opened, but a study of his train of symptoms for a week prior to his admission to the Infirmary leads me to the belief that he had already been infected before the operation, and that for but prompt relief he would have succumbed in a very short while.

A New Whooping-cough Bacillus. — An Italian investigator, Dr. Vincenzi, of Sassari, claims to have discovered the specific pertussis microbe. He found it in the sputa of children suffering with whooping-cough, being present in some cases in very large quantity, while it was absent in other diseases. Dr. Vincenzi did not succeed in causing the same disease by inoculation in animals. — *Medical Record.*

CÆSAREAN SECTION IN A GENERALLY CONTRACTED PELVIS WITH A TRUE CONJUGATE OF SEVEN CENTIMETRES MINUS.

BY SARAH ELLEN PALMER, M.D.,

Surgeon to the New England Hospital; Assistant Surgeon to the Woman's Charity Club Hospital and Physician to the Pope Dispensary.

THE patient was a small, apparently well-formed woman, fifty-five inches in height and weighing eighty pounds. Late in the seventh month pelvic measurements were made, and the true conjugate found to be a little less than two and three-quarters inches in a generally contracted pelvis. Dr. Emma L. Call, who kindly saw the patient in consultation, agreed in the above measurements.

The patient was given the choice of premature delivery with little chance of saving the baby or a Cæsarean section with good prospect of life for both mother and child. She unhesitatingly chose the latter.

A date was fixed as the probable termination of pregnancy, and September 13th chosen for operation unless labor began before. The reason for this was that more satisfactory preparation could be made than for an emergency operation. Kelly advises this and Washburn has found subsequent dilatation of the cervix in any event.

The patient went to the Baptist Hospital on the 11th of September, and the usual preparation for an abdominal section made. She was much debilitated by an unusually severe attack of hay-asthma and the accompanying wakefulness and bronchitis.

Mrs. T. G. H., English, twenty years old, married six years and never before pregnant. Last menstruation December 15th. Slight flow January 2d. Quickening April 12th.

Operation September 13th. Ether, given by Dr. Julia Tolman, was begun at 10.28. Patient on the table at 10.43. Vagina cleansed and sterilized; gauze introduced by assistant. The pad of corrosive gauze was removed from abdomen and the skin scrubbed with soap and water, which was followed by a wash of corrosive (1 to 1,000 water and alcohol).

Abdominal incision begun at 10.55. Uterus lifted out of abdominal cavity and a rubber ligature thrown around cervix, ready to tighten if hemorrhage proved uncontrollable without this precaution. Dr. Clara J. Alexander assisted, first holding the abdominal walls firmly against the uterus, and then held the broad ligaments, ready to compress the arteries more firmly after the child was delivered.

Incision made in uterus and membranes cut; incision continued to within seven centimetres of fundus and nearly down to the cervix. Child delivered at 10.56 and twenty seconds, or one minute and twenty seconds from the start. Cord clamped and cut; baby handed to Dr. Mary Hobart in five seconds more. The placenta was attached to the fundus, and the membranes were found adherent along the line of incision. Adhesions separated, and placenta grasped and gently twisted according to Kelly's method; removed intact without difficulty. Uterus immediately contracted and the wound closed by two rows of silk sutures, one row deep down to, but not through, the mucosa, and a second half deep. Cervix dilated from above, and a piece of Harrington's gauze pushed down through the cervix, leaving the end in the uterus, the vaginal gauze being removed by an assistant.

Dr. Anna Richardson assisted with the sponges and instruments. Uterus replaced and omentum pulled down over intestines. Meantime the walls had been so firmly held that no fluids had escaped into the abdominal cavity. Peritoneum closed by catgut and the walls by silkworm gut; the last stitch tied at 11.23, or twenty-three minutes from the start.

Sterilized gauze fastened over wound by collodion and dressings complete at 11.28. Before removing the patient from the table, indeed after placenta was delivered, two grains of ergotin was given subcutaneously and one pint of normal salt solution, with eight ounces of black coffee by rectum.

The recovery was uneventful for the mother, excepting for the bronchitis increased by the ether, and after-pains such as might be experienced by a multipara.

The gauze was removed from the cervix at the end of twelve hours, and with the exception of the second twenty-four hours the lochia went on as in a normal case. I mention this because I find that experiences vary, and the alarm I felt when the discharge ceased the second twenty-four hours was not justified.

As for the baby, the resuscitation was difficult, and not for thirty-six hours was the condition satisfactory. The child seemed profoundly etherized. The present condition of mother and baby is perfect.

I have to thank my assistants and hospital nurses, who helped to make this case a success.

THE MEDICO-LEGAL SIGNIFICANCE OF THE PRESENCE OF SUGAR AND GLYCOGEN IN THE LIVER POST MORTEM.[1]

BY W. K. BROWN, M.D., AND WYATT JOHNSTON, M.D., MONTREAL.

IN 1897 Lacassagne and Martin, of Lyons,[2] reported the results of two hundred cases which were tested as to the presence of sugar and glycogen in the liver at the autopsy. Their observations were made with a view of investigating the statement of the late Claude Bernard,[3] that the livers of persons dying sudden or violent deaths contained sugar or glycogen, and usually both, while these substances were said to be absent from the livers of persons dying of disease.

Until the subject has recently been re-studied and a practical method of performing the test was discovered by Lacassagne there were practically no observations, except some made in his laboratory by his pupils Colrab and Fochier in 1888, and Colonel in 1893. The technique recommended is to make an emulsion of the liver-substance (usually 100 grammes), by rubbing it up with water, boiling this in a porcelain capsule, filtering with animal charcoal, and testing the filtrate by Fehling's solution. If glycogen was present the fluid was opalescent. We find that smaller amounts of liver-substance suffice, and that the use of charcoal is hardly necessary.

Lacassagne and Martin recognized the medico-legal value of a test of this kind in deciding such difficult points as whether the injuries received by a person suffering from some serious disease are the immediate cause of death or not. They state that, in the main, their results are strongly confirmatory of the statements of Bernard, though they reserve for the present their opinion as to its significance in poisoning cases. They

[1] Read at a meeting of the Massachusetts Medico-Legal Society, October 5, 1898.

[2] Archives d'Anthropol. Criminelle, 1897, p. 446.

[3] Thesis de Faculté des Sciences, 1853.

find that dead-born syphilitic children give a negative reaction, and children live-born or dying during parturition positive ones. On these points we have confirmed their observations.

As the matter seemed to us of practical importance we have made observations on a series of one hundred unselected cases, obtained from the coroners' court and hospital service, and about equally divided between violent and natural deaths. We wish here only to summarize the results obtained, and it is the intention of one of us [4] to report the observations more fully in a subsequent paper. The number of cases studied we do not regard as sufficiently large to serve as a basis for exact statistics. Our results were typical in eighty-eight cases and atypical in twelve.

(*a*) RESULTS IN CASES DYING FROM DISEASE.

Sugar and glycogen were found absent from the livers of those dying from disease except in two cases, in one of which cerebral hemorrhage and in the other brain abscess suddenly terminated the lives of persons apparently in fair health. One case of fatal gastric hemorrhage in hepatic cirrhosis gave a negative test, however. In cases of sepsis, of even a few hours' duration, the result of the reaction was always negative. In an elderly person dying of exhaustion ten days after the receipt of severe burns sugar and glycogen were also absent. A negative result was obtained in a case of puerperal eclampsia fatal in twenty-four hours. A negative result was obtained in a case of diabetes dying from septic infection following gangrene.

(*b*) RESULTS IN CASES DYING FROM VIOLENCE.

Where the death was sudden and affected persons in vigorous health, sugar and glycogen were always present, provided that the processes of alimentation were proceeding in the ordinary manner. On the other hand, in three cases where death resulted within forty-eight hours of injuries (cut throat, fracture of vertebræ, fracture of the base of skull) the result was negative; in the last-named case there was a moderate catarrhal jaundice, from which the patient was convalescing, and the lungs showed traces of commencing aspiration pneumonia. In two cases where death was immediate and due to fracture of the skull, the liver showed neither sugar nor glycogen. In both of these cases there was evidence, both post-mortem and clinical, of acute alcoholism, while there appeared to be no food in the stomach or upper intestine, and in one of them scarcely any feces was found in any part of the intestines. Here it appeared that the individuals had been indulging in a long spree, and, as is common in such cases, had taken little or no food. In another case, where death occurred in the course of an attack of delirium tremens, a negative test was obtained. We think that this point is one on which further information is important, in view of the frequency with which an excessive use of alcohol forms an incident in the circumstances in deaths calling for medico-legal examination.

A case of suicide by carbolic acid also gave negative results to the test. Here, as the man was found dead locked in his room, we had no clear account of the conditions affecting alimentation, but it was stated that his habits were intemperate and that he had recently been drinking heavily. The autopsy did not show that food had recently been ingested.

[4] W. K. B.

In two cases of drowning, where the bodies were in an advanced state of decomposition, the test gave negative results; in two others the test was positive.

CONCLUSIONS.

We can confirm the results of previous investigators as regards the result of the test in healthy persons living under normal conditions of nutrition. From our experience so far we are inclined to regard the test as one of very considerable value where the conditions relative to alimentation previous to death can be established through the history or by the results of the post-mortem. It should be borne in mind that the information as regards the cause of death is indirect and that the direct information relates only to the glycogenic function of the liver. We wish to emphasize the important influence of sepsis and of alcoholism with abstention from food; when these are excluded we find the results very constant.

Medical Progress.

REPORT ON PROGRESS IN GYNECOLOGY.

BY EDWARD REYNOLDS, M.D., BOSTON.

SOME OF THE DISADVANTAGES OF VAGINAL DRAINAGE FOR PELVIC ABSCESS.[1]

In this extremely interesting paper Noble, one of the leading advocates of vaginal drainage, takes occasion to insist upon the restriction of this method to large complicated pelvic abscesses, especially in acutely sick and in feeble patients, and incidentally writes of the disadvantages of the method. He believes that the operation must occasionally be abandoned from incorrect diagnosis, and in other cases on account of mechanical difficulty in reaching the abscess from below.

He quotes under this heading the case of a patient who had had six previous abdominal sections. Her appendix, her ovaries and her uterus had been removed, and she had had several operations for secondary trouble. Her temperature was 103° F., and a mass was felt in the left half of the pelvis. On making an incision into left broad ligament no pus was found, and an extensive exploration of the ligament with the finger made it evident that the mass was of a non-inflammatory character. At a subsequent abdominal operation it was found to be a small cyst in the broad ligament. The vaginal incision did no harm and no good. He reports another case in which he broke up several large exudates without finding any pus, and was uncertain whether the operation was to be of value or not. It did no harm, and was followed by the greatest benefit. He reports in detail two other cases in each of which a vaginal incision into an ovarian abscess failed to effect a cure, and its radical removal by an abdominal operation was subsequently necessary. After reiterating his belief in the value of the method for restricted use, he closes in the following words: "When a method of treatment is comparatively new its advocates usually describe its advantages in glowing terms, and say nothing of its disadvantages. Its opponents, on the other hand, decry the operation, but as they do so without experi-

[1] Charles P. Noble M.D. American Gynecological and Obstetrical Journal, vol. xii, p. 301.

ence, their testimony, as a rule, carries less weight. As I have advocated this method of treatment, I thought it might be of interest to relate these instances of failure or partial success. They carry the lesson that disappointments will frequently follow a resort to vaginal incision and drainage for supposed pelvic abscess. The frequency of failure will of course depend upon the relative accuracy of diagnosis in these cases."

IMPROVED TECHNIQUE IN OPERATION FOR INTRA-LIGAMENTOUS CYST, WITH PRESENTATION OF SPECIMEN.[2]

Hall, after describing the ordinary methods of dealing with sessile, intra-ligamentous cysts, describes a method which he practised successfully on an extremely difficult and almost hopeless case. Its essentials consist, briefly, in tying off both the uterine and ovarian arteries upon the healthy side, cutting down through the broad ligament of the healthy side and across the cervix; then tying the uterine upon the other side, and peeling out the cyst from below, cutting away the broad ligament as becomes necessary. The operation is, of course, rendered bloodless and much more rapid. The writer was led to it by the imperative necessity of controlling hemorrhage during an operation which he reports.

ON THE PATHOLOGY OF STUMP-EXUDATES AFTER SALPINGECTOMY.[3]

Ries makes an exceedingly interesting report upon his microscopic examinations of three uteri which were removed some months or years after the removal of one or both tubes. All the tubal stumps were found permeable. After reporting the cases in detail, and reporting one in which Gottschalk found the tube occluded, he says: "At all events, Gottschalk's communication proves that my observations must not be generalized without further investigations. The cases seem to differ. In some the tubal cavity becomes occluded; in others it does not. Presumably, the technique of the operation has something to do with this difference, though at present we are not in a condition to say how much. If the uterine end of a tube is broken off in the course of the removal of a tube, as happens frequently in cases where the tubal tissue is chronically inflamed and infiltrated, it is often unnecessary to put any ligatures on the stump. In these cases there is a greater probability of the tubal cavity remaining open. I could not find out whether this occurrence had taken place in the three cases which I have reported above. Cauterizing the stump will hardly suffice to bring about complete occlusion. If the tubal stump is ligated with silk the thread remaining on the stump for a long time may, by pressure atrophy, bring about complete occlusion, while catgut, perhaps, will be absorbed before pressure atrophy of the mucous membrane has been effected. Stitching the peritoneum over the tubal stump, or, better even, excising a wedge of uterine tissue with the tube and closing the wound in the uterus with sutures through its muscular tissue should give more probability of success.

"My observation that the tubal cavity may remain patulous after salpingectomy appears to give a natural and more rational explanation of the origin of stump-exudates than any other theory hitherto offered. It is clear that, the tubal lumen remaining open, infection ascending from the uterus finds ready access to the peritoneum through the open tubal stump, just as primarily the infection spread from the uterus along the tubal mucosa into the peritoneum. This latter process causes perisalpingitis, perio-ophoritis, perimetritis, the conditions so frequently associated with tubal inflammation — and a perisalpingitis forming around a tubal stump is exactly the condition which is clinically termed a stump-exudate. These observations explain also the difference between two classes of cases, one class being characterized by the occurrence of the stump-exudate during the convalescence from the operation, in the other class the stump-exudate occurring months after the operation. In the first class the infection has spread through the open tube from the uterus, which contained infectious material at the time of the operation and could not be made completely aseptic. In the second class of cases the uterus has been healthy or was made aseptic at the time of the operation, but the uterus is infected, and the infection spreads through the open tubal stump after the patient has left the hospital.

"If after removal of the tube its stump can remain open it is not only possible that an infection spreads through it but an ovum may pass through the patulous stump and pregnancy take place. And, in fact, modern literature contains a number of cases which are almost experimental evidence of the possibility of the tubal stump remaining open after salpingectomy. Such cases are published in the *Transactions* of the American Gynecological Society for 1892, and in the *American Journal of Obstetrics*, 1897."

EFFECT OF THE ERECT POSITION ON MENSTRUATION.

E. C. Gehrung[4] considers that the immense number and variety of diseases to which the human female is subject, in comparison to the female of other mammalia, is influenced by the erect position.

The study of sanguineous menstruation, which belongs almost exclusively to the human female, has been the subject of much labor and speculation. Some scientists contend that it is a secretion; others that it is a hemorrhage. The author places himself unreservedly upon the latter side. If it is a hemorrhage it is pathologic, and not physiologic. He considers this excessive sanguineous discharge an accidental hemorrhage, subserving no useful purpose, and recognizes for its principal cause the erect position.

From his observations the author draws the following conclusions:

(1) That the erect position of man is acquired or assumed, and that the different organs have to depend for their support greatly on accident and the gradual adaptation, through necessity, of means to ends. A gradual transformation has occurred through numberless years, but the transformation is not yet complete.

(2) That if the support of the pelvic organs is insufficient for all purposes the production of artificial ligaments (Alexander's ventrofixation, etc.), or artificial mechanical supports, are the legitimate means to counteract the otherwise deficient conditions, and that a reliance on therapeutic agents is generally useless.

(3) That menstruation is the equivalent of the rut or estruation of the lower animals, and may or may not

[2] Rufus B. Hall, M.D. American Gynecological and Obstetrical Journal, vol xii, No. 1, p. 22.

[3] Emil Ries, M.D. American Gynecological and Obstetrical Journal, vol. xii, p. 29.

[4] Denver Medical Times, January, 1898.

be accompanied by a greater or less sanguineous discharge.

(4) That any excessive loss of blood, or loss for too long a period, is radically wrong — a pathological condition due principally to the erect position, and that it should, by all means at our disposal, be repressed (not suppressed), that is, diminished to a moderate quantity and duration, especially by mechanical means, such as vaginal dry or wet tampons.

THE EXISTENCE AND THERAPY OF CHRONIC GONORRHEAL VAGINITIS.

Oskar Bodenstein[8] claims that the chief seat of chronic gonorrheal colpitis is in the posterior vaginal fornix, and adds, furthermore, that this, and not the urethra, is almost invariably involved. Many authors have considered this to be the starting-point of the process.

He quotes the following clinical criteria, as taught by Sanger, for the establishment of the diagnosis of chronic gonococcus infection:

(1) The history may reveal: (*a*) opthalmo-blenorrhea of one or more children; (*b*) former *ardor urinæ*; (*c*) gonorrhea in the husband.

(2) Disease of Bartholini's glands, characterized particularly by a petechial purplish red area about the orifice of the ducts; especially suggestive is the discovery of the *maculæ gonorrhœicæ* on both sides, together with a reddening of the ureteral orifice.

(3) Fistulæ, abscesses and cysts of the Bartholinian glands are conclusive evidence of existing gonorrhea.

(4) Spitzcondylomata.

(5) Dark red spots upon a yellowish-white streaked base upon the vulva.

(6) Erosions of the external os of the cervix.

(7) The local application of a 50-per-cent. solution of zinc chloride will cause the granules in the vaginal mucous membrane to spring into relief in chronic gonorrhea.

(8) Involvement of the urethra.

Irrigation practised by the patient should be of strong solutions of bichloride or carbolic acid, should be taken in the recumbent position and with an elevation of the bag to the height of one to one and a half metres. He calls particular attention to the advantage gained by making use of the air contained in the douche-nozzle and tube as a means of distending the vagina, thus creating an "aërocolpos." In this manner all the folds and irregularities of the organ are straightened out, and the entire surface becomes accessible to the irrigating fluid.

But it is chiefly to the treatment of these cases in which the irrigation treatment has been unsuccessful that his paper is directed. As is the case in the male urethra, chronic gonorrheal vaginitis is a deep-seated process, the infectious agents being found chiefly in the submucosa, and thus but little affected by irrigations, especially as ordinarily practised. In the treatment of chronic urethritis in the male, large-sized sounds are used, which distend the affected areas, mechanically bringing the gonococci nearer to the surface, and thus excite increased secretion, which is controlled by local applications. Reasoning from analogy, a similar plan of treatment ought to be successful in chronic vaginitis. He employs, therefore, a firm tamponade of the upper half of the vagina, filling in all the fornices. To aid in the softening and desquamation of the abnormally thickened horny layer of the epithelium he adds glycerine to the cotton employed for this purpose. This agent, in virtue of its hygroscopic properties, also produces an exosmosis, which washes the gonococci to the surface. After twenty-four hours the tampons are removed, the secretion (which is increased in amount) mopped up and a topical application of nitrate of silver made in solutions varying in strength from 2 to 20 per cent. Then the tamponade is again practised. In this manner an early cure will be effected, provided, of course, that the adnexa are not also the seat of infection.

[8] Deutsche med. Woch., October 14, 1897.

THE APPENDIX AND THE FEMALE GENERATIVE ORGANS.

Pichevin[9] says that Trent, of Amsterdam, basing his opinion on the anatomical researches of Glado, advances the theory that appendicitis is a less serious affection in women than in men, on account of the free passage of the infectious products from the lymphatics of the appendix to those of the broad ligament, and that thus a parametritis is often produced, the origin of which could be traced to the appendix. He then adds the description given by Glado of the appendiculo-ovarian ligament:

"The relation between the appendix vermiformis and the internal genital organs of the female has long since been recognised. It is known that the appendix can come in contact with the appendages of the uterus and contract adhesions with either ovary or tube.

"Upon lifting up the appendix there is formed a peritoneal fold, which is continuous with its meso, and passes forward to merge with the superior border of the broad ligament. This falciform band is the appendiculo-ovarian ligament. It is least elevated at its centre, where it crosses the iliac vessels, and measures about one to two centimetres in height. It is a fairly constant anatomical structure and permits of a more or less free communication between the lymphatics of the organs thus connected, as was shown in two cases by injecting the recent specimens with colored fluids. Thus a starting-point is offered from which many important pathological deductions may be drawn. It explains the course of purulent collections from the broad ligament to the cecum, and *vice versa*, and the frequent determination of pus accumulations toward the iliac fossa finds herein an acceptable anatomical explanation."

The author remarks that as Glado has been able to prove the existence of this lymphatic communication in but two cases, it is therefore exaggerated, or at least premature to describe this as a constant anatomical condition, and adds that further researches will be necessary to prove the pathological value of Glado's discovery.

[9] La Semaine Gynécologique, November 16, 1897.

A SIMPLE METHOD OF COLLECTING THE ISOLATED SECRETION OF EACH KIDNEY IN THE FEMALE.

Alfred Neumann[7] calls attention to the fact that in considering the indications for operative interference in cases of unilateral tumor of the kidney it becomes expedient to determine the presence and integrity of the other kidney, especially when the urine passed *per urethram* contains blood, pus, kidney epithelium, etc. Catheterism of the ureters, he says, is difficult of ac-

[7] Deutsche med. Woch., October 21, 1897.

complishment, not devoid of danger, and has of itself caused hemorrhage in 50 per cent. of the cases. The various methods of comparison and the temporary ligation of one ureter have found but few adherents.

His idea rests upon the principle of partitioning off the two sides of the urethra and of the fundus of the bladder to the height of the mouths of the ureters. This is accomplished by means of a tube of thin metal, four centimetres in length, one centimetre in diameter, and containing in its lumen a vertical partition, which is continued beyond the proximal end of the tube to a distance of four centimetres, so that its entire length is eight centimetres. At the distal end of the tube the two lateral compartments are prolonged into two diverging tubules to each of which a test-tube can be attached. The proximal end of the partition gradually narrows down to a rounded point. The tube and its prolongation have a slight curve with the concavity upward, so that it adapts itself well to the posterior surface of the symphysis pubis.

The method of application he describes as follows: The patient sits well forward on the edge of the operating-table and rests the extended and abducted limbs upon the floor or other support; the conical end of the instrument is passed into the urethra with the concavity forward, and readily glides into the bladder, upon which any urine which may be present will flow out. Then one of the tubules is attached to an irrigator, and the bladder is flushed with a solution of boric acid. After this fluid has been drawn the index finger is passed into the vagina and the instrument is gently and evenly pressed against the symphysis pubis, and thus the lower segment of the bladder and the urethra are divided into two separate compartments, each receiving the secretion of its respective kidney. As additional advantages of this method he cites: That the secretions of two kidneys are received simultaneously, thus allowing a comparison to be made of the amount of the secretion from each; that the position of the patient is less objectionable to her than those employed in other methods of investigation; that neither general nor local anesthesia is required; that illumination of the bladder is unnecessary, and no danger of infecting ureter or kidney is incurred; and, above all, that it requires little or no dexterity to accomplish the desired object.

POST-OPERATIVE PYSCHOSES.[8]

In a discussion on this subject before the Société de Chirurgie[9] Reynier denies that psychical disturbances could result from surgical operations in patients without any previous tendency to such manifestations. A careful review of the family history of such individuals will show that there is either a marked hereditary taint, or that they have already presented evidences of some mental or moral aberration.

Segond affirmed that he was unable to offer a satisfactory explanation of the psychoses following gynecological operations. He was inclined to believe that suggestion was an important factor in many instances. Among 642 cases of artificial climacteric he was able to find, after a conscientious search, only four patients with post-operative mental affections — one of kleptomania, two of melancholia, and one of mania. The latter persisted for only two weeks, and the two cases of melancholia made a rapid recovery. The patient with kleptomania "was a thief before operation and remained one afterward."

The speaker summarized his views as follows: There is no recorded case of a pyschosis directly due to a surgical operation. In the majority of the cases in which mental disturbances have been attributed to surgical interference the patients were either mentally affected beforehand or possessed an hereditary taint. In the absence of a previous history, women who become insane after operations should be regarded as the victims of suggestions, furnished by either the physician or friends of the patient.

PLASTIC OPERATION FOR INCONTINENCE OF URINE.

Lebedeff[10] reports the case of a patient who was unable to retain her urine after an operation for urethro-vesico-vaginal fistula. In order to replace the sphincteric action which was wanting he advised the following method of making pressure upon the posterior wall of the urethra: a surface an inch long and half an inch wide was denuded on either side of the urethra, in the folds between it and the labia minora. The posterior wall of the urethra was then pushed upward so that the surface could be apposed, and their inner edges were united by a continuous catgut suture. Silk sutures were used to complete the approximation. On filling the bladder with water and exercising upon it, its retentive power was found to be perfect.

KUSTNER'S INCISION IN CELIOTOMY.

Frantzen[11] describes the following modification of Kustner's incision in ventrofixation: A transverse cut is made through the skin, its edges are held apart with retractors, and the peritoneal cavity is then opened by a longitudinal incision. Two sutures are passed through the fundus uteri and include the peritoneum, aponeurosis, and lower skin flap. Deep sutures are inserted, and finally the edges of the external wound are approximated, and the sutures, including the uterus, are tied over a roll of gauze. The resulting cicatrix is said to be quite firm.

CASES OF PREGNANCY FOLLOWING VENTROFIXATION, AND IMPROVEMENTS IN THE TECHNIQUE OF THE OPERATION.

The Treatment, through the Posterior Vaginal Cul-de-Sac, of Adherent Uteri.[12]

Dr. H. A. Kelly said that the suggestion to operate on the posterior pole of the uterus was most rational from a mechanical standpoint, but there were certain difficulties connected with the technique which demanded careful consideration and experimentation before a final judgment could be passed. His own preference had been for hysterorrhaphy or suspension of the uterus, not fixation. Out of 110 of these operations done since 1889, all of them through the abdomen, not one had died, nor had a single case developed ileus or, indeed, any serious morbidity. There had been very little vesical disturbance, particularly since he had been using rectal enemata of saline solution on the operating-table. With one exception there had not been anything unusual about the subsequent pregnancies. This one exception, however, had thrown a good deal of light on the proper method of operating. She was one of the early cases, done according to a

[8] American Journal of Medical Sciences, August, 1898, vol. cxvi, No. 2.
[9] La Presse Médicale, 1898, No. 28.
[10] Wratch; La Gynécologie, 1897, No. 6.
[11] Gaz. de Botkine; La Gynécologie, 1897, No. 6.
[12] American Journal of Obstetrics, July, 1898, vol. xxxviii, No. 247.

method which had proved faulty. Suppuration occurred, making it necessary to remove the sutures. As a consequence, extensive adhesions formed between the uterus and the abdominal wall. She became pregnant, and was delivered after a difficult forceps operation. She recovered, with an infection on the left side. This case emphasized the great importance of not "fixing" the uterus. The uterus should come up easily and lie almost in touch with the abdominal wall. When the pelvis was deep he modified the operation by catching the peritoneum behind the symphysis pubis and pulling it over the top of the uterus, and so getting rid of the traction. As a matter of fact, however, there always was some traction, owing to the filling of the bladder and to the fact that the uterus does not lie normally in contact with the abdominal wall. After some months the ligaments are pulled out and the uterus is in a perfectly normal anterior position and at "rest." Those who were specially interested in the statistics of this subject should give an analysis of the difficult labors based upon the exact method of operating. He had recently collected the various operations, and had found that there were no less than forty-five different methods of treating the uterus. Personally he preferred the direct operation — getting at the uterus through the abdominal cavity — rather than doing Alexander's operation. Both operations were substitutes for the normal, for the round ligament was not put there by nature to hold the uterus anteriorly, except under unusual conditions. If the ligament did any active work in holding the uterus forward, it would not appear, as it does, as a soft lax cord when viewed through the abdomen at operation. Dr. Kelly said that he had found in subsequent laparotomies that some of these round ligaments rupture after Alexander's operation. One patient recently examined in this way after pregnancy and delivery showed the uterus in a backward position and the ligament greatly elongated. It measured 19 centimetres in length from the posterior surface of the uterus to the anterior abdominal wall, and was only 1.5 millimetres in diameter. He still preferred the suspensory operation, which he had practised for so many years, and he would continue to practise it unless more cogent reasons were advanced in favor of some other method.

Reports of Societies.

FIFTH DISTRICT BRANCH, NEW YORK STATE MEDICAL ASSOCIATION.

Fourteenth Annual Meeting, Held in Brooklyn, May 24, 1898.

The President, N. W. Leighton, M.D., in the chair.

DISCUSSION ON GONORRHEA.

Dr. Robert W. Taylor read a paper on

THE PATHOLOGY AND TREATMENT IN MALES.

Within the last few years, he said, so much talk had been disseminated in regard to this subject that was loose and unscientific that the time seemed ripe for a clear and conservative discussion. In the sensational reports of the marvellous cure of cases in an incredibly short space of time with which our medical literature had been flooded one was struck, first, with the flippancy of tone displayed by the writers, and, second, by their lack of knowledge of the pathology of this really very serious disease, which they affected to regard so lightly. When we read of these speedy cures in such a large percentage of cases we perhaps wondered why we were not able to get such brilliant results; but the real marvel was the utter recklessness of the statements of these writers who advocated such unwarrantable measures. The present contribution, Dr. Taylor said, was an honest attempt to throttle this recklessness. Undoubtedly our recent more precise knowledge of the pathology of gonorrhea had taught us much that was of advantage in the treatment of the disease; but it was still true that there was much in the old methods that was worthy of retention.

In the great majority of cases the infecting agent was the gonococcus of Neisser, and in a small minority the streptococcus and staphylococcus. In addition to the virulence or mildness of the infection, the susceptibility of the individual had much to do with the severity or lightness of the attack in any given instance. It was thus seen that in order to obtain any reliable data we must have a knowledge of the intimate nature of the disease and of the constitution and condition of the subject attacked. If the microorganism were virulent and the tissues in a favorable condition for it the development of the infection would be rapid. Having described the initial symptoms of an attack of gonorrhea and the microscopical appearances of the discharge in the first stage (before the appearance of the pus), he said that the latter proved that the infection was as yet confined to the surface of the mucous membrane. If the patient was seen in this stage it was possible in many instances to abort the attack, but, unfortunately, very few patients appreciated the significance of the early symptoms of the disease, and the surgeon was rarely consulted until it was too late to make any attempt at aborting the trouble.

As the infection progressed toxins were developed, there was marked hyperemia, and the submucous tissues became involved, while the inflammatory process extended farther and farther along the urethral canal. The secretion was now yellowish and thick, and contained pus-cells, as well as gonococci. In such an acute attack of gonorrhea, generally involving the posterior urethra and accompanied with much cellular exudation, it was well to remember that in the list of requirements for a cure the killing of the gonococcus was to be placed last. Our aim should always be to allay the inflammation and, by restoring the parts to their normal state, deprive the gonococcus of the conditions necessary to its activity.

Referring to the "rapid transit" methods of treatment of late so much in vogue, Dr. Taylor described Janet's plan of irrigating the urethra. By the use of a solution of permanganate of potassium varying in strength from 1 to 1,000 to 1 to 4,000 or 5,000 Janet claimed that he could not only abort gonorrhea in the inital stage but that he could promptly cure it in the acute stage. The irrigation treatment had to be applied by the surgeon, to whom it was necessary for the patient to go once or twice a day. Cases treated in this manner were looked upon as cured in a very short time, but when they were closely investigated it was generally found that there remained some redness and a sticky condition of the mucous membrane. As

a matter of fact, the patients in the majority of cases were not cured at all, and after the irrigation had been discontinued it was generally found necessary to resort to the ordinary methods of treatment. By this irrigation plan the patient was railroaded into the terminal stage of the disease. It was apt to be followed by catarrhal inflammation and other more serious results. If the patient escaped epididymitis he would probably have posterior urethritis and severe stricture. This hydrostatic irrigation had been exploited fifteen years ago in this country, long before Janet had appeared as its champion. Among its disadvantages were, that it impaired the resiliency of the parts and gave rise to chronic prostatic irritation; so what should have been a boon proved a curse to the patient.

A treatment that was based on the pathology of the disease gave the best results. It was worth while to mitigate and shorten the attack if it could be done in a safe and reliable manner. In the early stage it was advisible to introduce into the fossa navicularis a three-and-one-half-inch soft-rubber catheter and employ rather strong solutions, such as permanganate of potassium, 1 to 500, nitrate of silver, 1 to 250, and bichloride of mercury, 1 to 1,000. Many cases could be thus aborted, but it was by no means certain that the result would be successful. With the utmost care in diagnosis and treatment we could never prognosticate with positiveness that the measures employed would prove curative.

In acute gonorrhea the old-time measures were still of great service. Among these might be mentioned rest, a spare diet, the avoidance of coffee, alcohol, spices and asparagus, moderate purgation and a general antiphlogistic treatment. In florid stage it became a question whether any local treatment would be admissible. It was generally of service, however, to have the penis soaked frequently in a hot concentrated solution of boric acid. If any injection was made into the urethra it should be with a syringe having a soft-rubber extremity. With the subsidence of the very acute symptoms injections of warm lead water were often of service. Later the ordinary penis syringe could be employed and various injections resorted to, such as lead hydrastis, astringents, etc. Of late certain new remedies had been highly recommended, such as argonin, protargol, etc., but he thought it was as yet too soon to pronounce definitely as to their efficiency. In the declining stage, although it was now the fashion to frown upon their use, he still thought the various antiblennorrhagics of decided benefit. If it were found that they caused gastric disturbance they should be discontinued.

In every case of gonorrhea the examination of the urine from time to time was of great practical service to the surgeon. With the disease in the acute stage and advancing, pus-cells were found in abundance, but with the decline of the inflammatory process there was a change in the urine, and the appearance of epithelial cells indicated the commencement of the reparative process. Our aim should now be, *First*, to cause the absorption of the round-cell exudation and give tone to the blood-vessels, and *second*, to assist the formation of new epithelial coatings. Here the nitrate of silver was of great service. From two to four ounces of a solution of the strength of 1 to 8,000 or 10,000 should be injected once a day. If the effect was good the strength of the solution might gradually be increased up to 1 to 250. Pus gradually disappeared from the urine, and the epithelial cells also grew less and disappeared.

The treatment thus outlined was comfortable to the patient and curative. By it the integrity of the submucous tissues was maintained, for with the use of a small, delicate catheter no damage could be done. As to the length of time required for the cure of a gonorrhea, he thought that both the profession and the public had been grossly misled by the statement so often made, that it was only from a week to fourteen days. Many of the so-called cures, it could be positively stated, were failures and the patients were left in really bad condition. Dr. Taylor thought that if a patient were cured in from four to six weeks he might consider himself a lucky man, and that the statistics of the so-called rapid transit methods were altogether fallacious.

DR. JOHN W. S. GOULEY read a paper on

URETHRAL STRICTURES.

He proposed, he said, to speak briefly on the genesis and management of idiopathic strictures. Fifty years ago the opinion prevailed that strictures were due to the violence of the treatment that patients were subjected to — the so-called abortive treatment. Since then it had been made clear that the urethritis itself is the real basis of the stricture, that an acute urethritis is a stricture *in posse* and a chronic urethritis a stricture *in embryo*. With the cure of an acute urethritis the nascent stricture might be nipped in the bud, but if trouble remained after the acute urethritis the stenotic process might be of very slow growth. The formation of a stricture was due to the deposit of a new product, a cicatricial or scar tissue, of a slowly contracting nature, resulting from the urethral inflammation.

Dr. Gouley then referred briefly to the various methods of treatment of urethral stricture. The sudden and violent methods of divulsion formerly employed, he said, had now been abandoned. In speaking of internal urethrotomy he said that while incision of the meatus might be necessary, it should never be to the extent of producing that unsightly hypospadias which was so revolting to the patient. In case there was fistula or extravasation of urine present external urethrotomy was called for. There was no method of treating urethral stricture which did not require long-continued periodic dilatation by means of the sound; but the abuse of very large sounds was to be deprecated.

DR. WILLIAM E. BEARDSLEY read a paper on

GONORRHEAL RHEUMATISM.

He said that about ten per cent. of those suffering from gonorrhea were attacked with symptoms of gout or rheumatism. The affection was first mentioned by Martinière, in 1644, but it was Sir Benjamin Brodie, of England, who was the first to clearly describe it. Having mentioned that Tyson regarded it as of septic origin, and referred to Taylor and other authorities, he stated that since the discovery of the gonococcus by Neisser, in 1879, the view had been pretty generally accepted that the disease of the joints or fibrous structures was due to the invasion of micro-organisms, or a specific poison affecting the general system.

The synovial membrane was first affected, and then the fibrous aponeuroses. Suppuration was seldom met with. The fever accompanying the joint affection was slight. The joint affection, as a rule, was not severe

and showed no tendency to metastasis. The joints attacked were generally the larger ones, and especially the elbow and wrist. Among the other parts more or less liable to be affected were the knees, ankles, fingers, toes and the sterno-clavicular articulation. There were swelling and tenderness, and the tissues covering the joint and the adjacent parts were apt to become edematous; but there was not usually a blush of the skin. The pain was acute, and was much increased by any attempt to move the limb. Tenderness was especially noticeable when pressure was made upon the stronger ligaments of the joint. Cardiac complications were rare. An absolute diagnosis in the earlier stages was often very difficult. In arriving at a diagnosis we must exclude other forms of rheumatism, and the gonorrheal history was, of course, of great service. The discharge from the genital organs might be slight, or even a mere gleet. It did not appear to be diminished or otherwise affected by the outbreak. As a point in the diagnosis, it should be remembered that in this affection the swelling was chiefly external to the joint. *Prognosis:* Few cases proved fatal, but chronic joint trouble sometimes resulted. Anchylosis was an occasional sequela.

In the treatment it was well to devote especial attention to the urethral or vaginal discharge, as the cessation of this was usually followed by improvement in the joint trouble. The affected joint should be kept at rest, and hot or warm applications made to it. Attention should be paid to the general health of the patient, and Miller had obtained good results with quinine, the dose being rapidly increased from one to five grains, three times a day. Alkalies, iodide of potassium, salicylate of soda and other remedies for rheumatism had often been tried in this affection, but seemed to be quite unsatisfactory. As a rule, it might be stated that the joint affection improved under the use of treatment based on the history of gonorrhea.

DR. LAWRENCE COFFIN read a paper on

GONORRHEAL OPHTHALMIA IN ADULTS.

This affection, he said, was characterized by catarrhal inflammation, photophobia and the sensation of a foreign body in the eye. There was great danger of losing the eye, as the cornea became involved in ulcerative processes. There was a profuse purulent discharge, and the neighboring glands were liable to become affected. Purulent inflammation of the entire eye might result, constituting what is known as panophthalmitis. The disease was most frequently contracted by the use of the same towel by a husband and wife, or by a number of employees in a factory or mill. It was a point worthy of notice that we did not always find present the gonococcus of Neisser. The right eye was generally affected first, and the reason for this was perhaps because the right hand is apt to be more frequently carried to the eye than the left.

Treatment. — It was best to put the patient to bed, because when this was done we could better regulate the light and temperature, and also be assured that our local applications would be made more regularly. It was a matter of importance that the unaffected eye should be protected. The conjunctival sac should be washed with a solution of bichloride of mercury of the strength of 1 to 3,000 or 5,000 every one or two hours. At the outset, if there were great swelling and edema, and not much pus, the use of nitrate of silver was not called for. The instillation of solution of sulphate of atropia, of the strength of two grains to the ounce, with cocaine, was of great service in many cases. In addition to whatever other treatment was employed light compresses of cheese-cloth, kept on a block of ice, should be applied over the eye freshly every half-minute throughout the day and night. If there were ulcerations present hot applications, instead of cold, should be used. Leeching was sometimes very beneficial. In the second stage, when the discharge was purulent, nitrate of silver was called for, great care being taken not to destroy the conjunctiva.

DR. COFFIN said that he had found hydrozone a very useful agent, on account of its antiseptic and pus-destroying properties. In young adults if the swelling of the eyelids was great it was sometimes necessary to cut the external canthus, dividing it with a scalpel from without, and leaving the conjunctiva uninjured. The hemorrhage thus caused was beneficial to the patient, and the procedure enabled us to apply our treatment more effectually. Great care in the way of cleanliness, both as regards the patient and the attendants, was, of course, essential. In the later stages of the disease weaker solutions of nitrate of silver were of service, as well as alum, zinc and the old ointment of red oxide of mercury. In spite of the most active and careful treatment, the patient might be left with haziness of vision and spots on the cornea, and, possibly, with staphyloma.

DR. WILLIAM MCCOLLUM read a paper on

MORAL PROPHYLAXIS AND THE ETHICAL DUTY OF PHYSICIANS TO THE PUBLIC.

He thought it was the duty of all family physicians to warn young men of the dangers and terrible consequences of venereal diseases. Moral prophylaxis, he believed, was of little value, but the prophylaxis of fear, if properly impressed, might have considerable beneficial effect. If a young man could have plainly set before him the evils resulting from illicit intercourse, which were liable to affect not only himself throughout life but also to destroy the health and happiness of his family, it might have considerable influence in helping him to avoid them. The trifling way in which gonorrhea was commonly spoken of showed that its frightful consequences were not at all appreciated by the public, and he hoped that the day would soon come when in all our high schools and colleges courses of lectures would be established in which the young would be instructed in these matters in regard to which they were now so wofully ignorant. It was, therefore, gratifying to learn that at the University of Berlin, within the last three years, a lecture course had been inaugurated in which an accurate knowledge of venereal disease was taught in a popular manner and illustrated with stereopticon pictures. These lectures, which were open to students in every department of the University, had been very largely attended, and their influence had already proved most beneficial.

DR. J. C. BIERWIRTH read a paper on

THE MEDICO-LEGAL RESPONSIBILITY OF PHYSICIANS TO THEIR PATIENTS AND PATIENTS' FRIENDS.

He said that since he had been asked by the President to address the Branch on this subject he had investigated the matter very carefully, and had found that there is really no such responsibility. The well-known case of Kitson against Playfair was the only

one on record bearing on the point, and a suit of that kind could never have been brought in the United States. It was well, therefore, he thought, that the general misapprehension on this subject should be rectified. In this country there was no law whatever prohibiting any physician from telling anything he knew about a patient, provided he spoke the truth.

The *moral* standpoint, however, was very strongly fixed in the minds of the medical profession, and in the code of ethics of the American Medical Association the sacredness of the relations between physician and patient was duly set forth. In the State of New York the prohibition applied only to the physician when on the witness stand. In the common law no such protection was afforded, and, therefore, the statute referred to was enacted. Dr. Bierwirth then quoted largely from an opinion by Judge Willard Bartlett, in which he cited a number of cases. If a physician, he concluded, disregarding his moral obligations, chose to expose the secrets of his patient, his doing so broke no statute, however reprehensible his conduct might be.

DR. L. GRANT BALDWIN read a paper on

THE SYMPTOMS AND DIAGNOSIS OF GONORRHEA IN FEMALES.

He was under the impression, he said, that it was Dr. Taylor who had once given expression to the opinion that gonorrhea is, directly or indirectly, responsible for more deaths than syphilis. Whether it was Dr. Taylor or some one else who had made the remark, he believed that few would dispute its truth at the present day. In the case of women one very unfortunate circumstance was that the disease so often escaped the attention of the patient. In the female the urethra was very often not affected. Whether the specific inflammation was located here or in other parts, however, many women naturally objected to having an examination made, and, even if an examination were made, the true nature of the trouble might not be recognized by the physician. One reason why this escaped attention was that few women, with the exception of prostitutes, were willing to confess that they had been exposed to the danger of contracting gonorrhea. Therefore, even if gonorrhea were suspected by the medical man, he might hesitate to make the true diagnosis.

If the urethra were primarily affected the attack would be attended with difficulty of micturition. There was a slight rise in the temperature and pulse, and the neighboring glands were apt to be affected. The discharge from the vulva was profuse and marked by a characteristic odor. Yet all these conditions might not confine the woman to bed or cause her to call in the services of a physician. Prostitutes, under these circumstances, often went on infecting men. Yet all the symptoms mentioned, it was not to be forgotten, might be caused by other troubles than gonorrhea, and a positive diagnosis could be only with the aid of the microscope. The acute stage of gonorrhea was seldom seen by the gynecologist. When the patient came under his observation the glands at the mouth of the vagina were usually enlarged, and the vagina itself was marked by punctate spots. There was a history of dyspareunia and sterility, and in the advanced stage of the affection the tubes and ovaries would be found to be seriously diseased. Many women would tell us that they had never been ill until they had married, and that since that time they had suffered from backache, headache, leucorrhea and menorrhagia or metrorrhagia. There were some cases in which the disease extended rapidly beyond the uterus, but these were not common.

(To be continued.)

Recent Literature.

Leprosy in New South Wales. Report of the Board of Health for 1896.

There are some noteworthy points in this brief report. Thirty-seven cases were under detention in the lazaret. Nine previous were reported as being suspected lepers during the year, six of whom turned out to be affected by some other disease. Nineteen of the patients were Chinese, and were deported to their former home. Of the sixteen remaining in the hospital, eleven were whites — a very significant fact.

Appended to the report are four life-size, excellent radiographs of changes in the bones of the fingers in cases of anesthetic leprosy.

New South Wales has set a praiseworthy example to other countries, (1) in requiring that all suspected persons shall be examined by experts, under a warrant issued by the Board of Health; (2) by making the notification of leprosy and the detention of lepers compulsory; and (3) in the deportation of foreigners affected by this disease to their own country.

A Manual of Otology. By GORHAM BACON, A.B., M.D., Professor of Otology in Cornell University Medical College, New York; Aural Surgeon, New York Eye and Ear Infirmary, with an introductory chapter by CLARENCE JOHN BLAKE, M.D., Professor of Otology in Harvard University. New York and Philadelphia: Lea Brothers & Co. 1898.

Dr. Bacon's work is, as both its title and the arrangement of its contents imply, not a text-book but a handbook especially intended for the use of students, the purpose of the author in preparing a manual of otology being, as set forth in the preface, to give the student a short and compact treatise on the subject and at the same time to afford a book of easy reference when opportunity may be lacking for the consultation of the excellent and more exhaustive treatises on otology which have been published both in this country and abroad. The success achieved in the prosecution of this modest and useful purpose is best shown in the pages of the book itself, in the emphasis which is laid upon the importance of treating all diseases of the ear in their earliest stages, and in the full consideration given to those particular diseases of the ear which come most frequently under the observation of the student and the general practitioner.

Notes on Micro-organisms Pathogenic to Man. By SURGEON-CAPTAIN B. H. S. LEAMANN, I.M.S. New York and Bombay: Longmans, Green & Co.

This is a small volume of 96 pages, cheaply bound and having no illustrations.

It is another addition to the long list of publications on bacteria and bacteriological methods. It has nothing to recommend it, when so many better books on the same subject are available.

Exiled for Lèse Majesté. By JAMES T. WHITTAKER. Cincinnati: Press of Curtis & Jennings. 1898.

This is a very interesting little novel from the pen of Prof. J. T. Whittaker, the author of a well-known text-book on Practice of Medicine. The plot (the exile to and escape from Siberia of a young Russian student, who was punished for a so-called "political" crime) is developed very ingeniously and entertainingly; it is the more interesting, as it contains a great element of probability, for, as the author acknowledges in the few prefatory words, "nearly all the incidents in it are real." Incidentally the little book shows the author's erudition in and remarkable familiarity with the Hellenic history, with the classics, both ancient and modern, as well as with Russian life and history. Of this latter we find particularly interesting the few glimpses into the hard and despotic character of Tzar Nicholas I. It is full of interesting and instructive quotations, and interspersed with beautiful verses and felicitous sayings by the author himself, out of a multitude of which we are tempted to bring forward the following: "A physician does not pretend to still the storm; he is simply a pilot who is satisfied to steer the ship through" (p. 57); or, "time is never so hopelessly lost as that which is spent in bewailing its loss" (p. 70). "The people judge the physician by the results of his treatment; but physicians judge each other by the correctness of diagnosis (p. 126)." The reader is well repaid for reading this novel, which shows keen insight into Russian life.

A Treatise on Diseases of the Ear, together with a brief Sketch of the Anatomy and Physiology of this Organ. By ALBERT H. BUCK, M.D., Clinical Professor of Diseases of the Ear, College of Physicians and Surgeons, Medical Department of Columbia University, New York; Consulting Surgeon, New York Eye and Ear Infirmary and the Presbyterian Hospital. Third revised edition, pp. 573, with index and 147 illustrations. New York: Wm. Wood & Co. 1898.

Dr. Buck's first book, published in 1880, was especially valuable to his colleagues as the record of the personal experience in clinical otology of a careful and experienced observer, and in the present volume, much enlarged and presenting more of the characteristics of a text-book, this distinction has not been lost. Both in the classification of subjects and in the use of distinctive headlines the present edition is much increased in value for purposes of ready reference, and the addition of a chapter of forty-five pages on the pathological condition of the fauces, vault of the pharynx, and nasal cavities, which play an important part in the causation of ear diseases, and the further space devoted to the consideration of meningitis, extradural abscess and abscess of the brain in connection with suppurative middle-ear disease mark the advances which have been rationally made in the extension of the field of otology in these directions during the past eighteen years and help to make this the best clinical text-book on diseases of the ear and their complications as yet published in this country.

THE MONUMENT TO CHARCOT, which has been erected in front of the Salpêtrière, was unveiled on Sunday, December 4th, at 10 A.M. M. Leygues, Minister of Public Instruction, presided at the ceremony.

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SOME MINOR CAUSES AND CONDITIONS RELATIVE TO THE SPREAD OF TYPHOID FEVER.

RECOGNIZING the fact that the definite and exciting cause of typhoid fever exists in the excreta of those who are ill with this disease, there are yet many variable conditions and circumstances under which the specific poison of the disease spreads from the sick to the well. The most common medium of transmission of the typhoid germ is unquestionably the water-supply, either public or private, and the natural tendency of water to run down hill, carrying these excreta with it from the houses of the sick into wells, ponds and streams used as water-sources, explains the frequency of this mode of infection. The serious epidemics at Lawrence, Lowell, Newburyport, at Plymouth, Pa., Chicago and Philadelphia were all traceable to this cause and mode of infection. Dr. Ernest Hart rendered a useful service in collecting a very large number of such epidemics and publishing them under the name of "Water-borne Typhoid."

Probably at least three-quarters of the extensive epidemics of typhoid fever have been of this character.

Closely allied to the water epidemics are those which are commonly ascribed to the milk supply, and in these the primary medium of transmission is undoubtedly the polluted water which in some way or other gains access to the milk, either as an adulterant, or in its use for the washing of the receptacles in which the milk is stored, or transmitted from producer to consumer, since no evidence has ever been produced to show that typhoid-fever infection could be transmitted to the milk by means of polluted water which the cows had swallowed.

The foregoing methods of transmission having been eliminated, there yet remain other modes which recent observations have shown to be possible. At Lawrence, Mass., after the introduction of a filter for purifying the entire water-supply of the city, and reducing the death-rate from typhoid fever to less than one-tenth of its former proportions, and eliminating certain cases among persons who were known to have drunk

the water of the canals in the city, there still remained unexplained other cases, some of which appeared to be due to the return of persons from certain summer resorts where the sanitary conditions were seriously at fault and where these persons had contracted the disease. From a statement in the last report of the State Board of Health it appears that an inspection of these resorts, picnic grounds, etc., has been made which showed that many of these places afforded conditions unusually favorable for the spread of disease, but in many instances the proprietors had shown themselves willing to comply with suggestions as to much-needed improvements. The number of these places in the neighborhood of cities and large towns has greatly increased since the introduction of electric railways running in every direction.

Another source of infection, which has become manifest in recent years, is the ice-supply. Well-authenticated cases of typhoid fever have, in recent years, been traced to the use of ice from ponds and streams polluted with sewage. The need of protection in this direction has shown itself in the trend of public legislation in the past twenty years, and at least three different laws have been enacted in Massachusetts for the protection of the community against the sale of polluted ice.

It is remarkable that thus far the cities and towns of Massachusetts which have taken action under these statutes have been chiefly those of the western part of the State (North Adams, Holyoke and Worcester), in which the actual degree of pollution has been much less than that of Eastern Massachusetts. The extent of water pollution depends very largely upon density of population, and the greater density is that of the Metropolitan District. There are ponds still in use as sources of ice-supply in Brighton, Arlington, Lynn, Wakefield, Melrose and Woburn upon whose water-sheds the population is from 1,000 to 1,500 per square mile, and into which sewage is constantly running without let or hindrance. The authorities of these places, as well as those of western towns, have power to prohibit the sale of this ice.

Another source of typhoid infection is to be found in those shell fish which are eaten raw. Many different kinds of shell-fish are eaten raw in England and upon the continent of Europe, but in America the oyster is almost the only kind which is thus used.

The report of Dr. Bulstrode to the Local Government Board of England in 1895 showed conclusively that epidemics of typhoid had been due to the use of oysters from places upon the coast of England which were polluted by sewage. Similar epidemics have also been reported from Connecticut and from Amherst College, due to the same causes. It is not unreasonable, therefore, to suppose that some of the unexplained cases which occur in our cities in the autumn may be due to the eating of raw oysters gathered from sewage-polluted waters. The season of greatest typhoid prevalence coincides with the beginning of the oyster season. The actual intensity of sewage-pollution in the Providence River, noted for its oyster-beds, is far greater than that of any of the sea-coast oyster-beds mentioned in the report of Dr. Bulstrode. The Providence River and Narragansett Bay receive the sewage of about 300,000 inhabitants, living in Providence, Pawtucket, Worcester and other places contributing to the water-shed of the bay, and this sewage-polluted stream floats to and fro over the oyster-beds at each turn of the tide.

THE USE OF MORPHIA IN HEART DISEASE.

OPIUM still remains one of those drugs whose varied uses must be learned empirically from clinical observation rather than from any theoretical consideration of its *modus operandi*, or from any study of its physiological and toxicological effects in healthy men and animals. Its wide range of action, according to the dose and form of administration, makes it applicable to certain cardiac affections, especially such as are attended with dyspnea and pain. In many cases of angina pectoris, despite the undeniable advantages to be derived from nitro-glycerine and nitrite of amyl, it must be the main reliance. By the consent of the profession, morphine is the preparation most generally chosen, and the popular opinion that it is both a respiratory and cardiac stimulant (helping the heart perhaps by a general vaso-dilator action, besides allaying morbid irritation and pain) is not without foundation.

Is morphine equally beneficial in aortic and mitral disease?

Some (as Dujardin-Beaumetz) think that it is of especial benefit in aortic regurgitant disease. Here it is, he says, a sovereign remedy — as much so as digitalis in mitral insufficiency — opposing the two great symptoms which result from lesions of the sigmoid valves — the cerebral anemia and the dyspnea; it also combats the neuralgias of the cardiac and pulmonary plexuses.[1] T. Clifford Allbutt finds morphine equally serviceable in mitral regurgitation, one hypodermic injection being given in the evening. Bartholow also speaks favorably of morphine injections in mitral disease. Germain Sée extols these injections in cardiac dyspnea, but calls attention to the evils attendant in the use of morphine, such as disturbance of the appetite, digestion and nutrition, formation of the morphine habit, diminution of the urine, etc. He has seen morphine bring on the Cheyne-Stokes respiration when injudiciously administered.[2]

Osler thinks that the calming influence of opium in all conditions of cardiac insufficiency is not sufficiently recognized.

Tyson takes the ground that persistent cardiac dyspnea, dependent so often upon passive congestions and pleural effusions, not otherwise relieved, demands an opiate of which morphine is the best. In milder conditions Hoffmann's anodyne may be tried.

[1] Diseases of the Heart, American Edition, p. 146.
[2] G. Sée: Maladies du Cœur, p. 805.

The American translation of Strümpell speaks of morphine in cardiac disease thus: "The dyspnea of heart disease is usually the most distressing symptom of all. Here, too, our chief task is, of course, to restore the compensation; but failing this, we must try to relieve the dyspnea symptomatically. Morphine is most efficient in this respect. In general, morphine is, next to digitalis, the most indispensable remedy in the treatment of severe heart disease. It is usually well borne, and procures great relief, especially if given subcutaneously. If we have to do with the last stage of the disease we need not spare large doses."

Dr. F. S. Toogood in the *London Lancet*, November 26, 1898, regards the notion that morphine is dangerous in heart disease attended with renal insufficiency as a prevalent one; he disputes its justness, and commends the use of morphine in desperate cases where other remedies have failed. Although doubting the prevalence of such a view among our best practitioners here, the report of experiences which were illuminating to him may not be amiss for others, as we are inclined to agree with Osler, that the "calming influence of opium in all conditions of cardiac insufficiency is not sufficiently recognized."

Toogood has employed morphine hypodermically in those distressing cases (mainly of mitral incompetence) where the exhibition of digitalis, strophanthus and convallaria excites vomiting, where the stomach retains practically nothing, where the heart is extremely irritable and irregular in rhythm and the pulse in volume, where often an ever-present dyspnea renders the condition of the patient intolerable from exhaustion and want of sleep, and where there may be also edema from failing circulation, and a scanty amount of albuminous urine. In these cases the subcutaneous injections have given most gratifying results. The pulse has become steady, strong and regular, the edema has disappeared, the dyspnea has been relieved, and the urine, instead of being scanty, high colored, of high specific gravity and containing albumin, has become normal in amount and character, and the albumin has become much less or has entirely disappeared. Dr. Toogood reports five cases, two of them typical cases of angina pectoris, where life was apparently prolonged and a fair measure of comfort maintained by morphine injections; no bad effects from the remedy were noted. One of the other patients had mitral regurgitation with edema and dyspnea, urine scanty, loaded with lithates and somewhat albuminous, pulse small, rapid and irregular. Under the influence of morphine injections, he was able to sleep quietly and comfortably; the pulse came down to 80 beats per minute; the urine increased to 70 ounces; the edema disappeared, and the albumin cleared up. His general health so far improved that he was able to resume most of his former occupations.

Another patient had both aortic and mitral regurgitant disease, and all the ordinary cardiac stimulants having failed, resort was had to morphine hypodermically. A fresh lease of life was given to this patient. In another case diagnosticated as obstructive mitral disease, the pulse, first tumultuous and rapid, became almost imperceptible, and the patient was in a state of collapse. The urinary secretion was nearly suppressed. Under the influence of a hypodermic injection of one-fourth of a grain of morphine every twelve hours the patient began to improve, was able to sleep; the vomiting, before persistent, ceased; the urine became normal in amount, and the tumultuous action of the heart subsided. This patient ultimately recovered so as to be able to resume work.

Dr. Toogood closes with the remark "that morphine in large doses is a cardio-vascular depressant is well known, but its soothing effects upon irritable conditions of other organs are so well recognized that I am inclined to think that the undoubtedly beneficial results in cardiac disease are due to its action upon the nervous apparatus of the cardio-vascular system, both central and local, bringing rest to an overstrained organ, and allowing it the chance of developing its recuperative power."

MEDICAL NOTES.

Professor Röntgen Leaves Würzburg for Leipsic. — Professor Röntgen has resigned his appointment at the University of Würzburg, having accepted the post of Professor of Physics at Leipsic.

Typhoid Fever at Honolulu. — Typhoid fever prevails extensively and unnecessarily among the United States troops at Honolulu, dispatches dated November 23d stating that there were over three hundred cases there at that time.

The O'Dwyer Scholarship. — The trustees of Columbia University have established in the College of Physicians and Surgeons a scholarship to be known as the O'Dwyer Scholarship, in recognition of Dr. Joseph O'Dwyer's professional labors.

Dr. Wood Recommended for a Major-Generalship. — Brigadier-General Leonard Wood, M.D., a graduate of the Harvard Medical School, and now Military Governor of Santiago Province, has been recommended to Congress by President McKinley for promotion to a major-generalship in the regular army.

Fevers in Children. — Dr. S. S. Adams, of Washington, lectured, by invitation of the faculty, before the seniors of the University Bellevue Hospital Medical College, December 20th, at the hour of the usual pediatric lecture. Subject: "Fevers in Children, their significance, general diagnostic value and antipyretic treatment."

Small-Pox and Yellow Fever. — Small-pox is still prevalent at Mobile, Ala., where sixteen cases and three deaths are reported from November 10th to December 6th. Eight cases and one death are reported at Pueblo, Col., and a few scattered cases in Iowa, and Norfolk, Va. One death from yellow fever is reported at Havana, and seven at Vera Cruz, Mexico.

BOSTON AND NEW ENGLAND.

LARGE BEQUESTS TO HOSPITALS. — By the will of the late John L. Gardner, of Boston, $50,000 is bequeathed to the Boston Lying-In Hospital and $50,000 to the Massachusetts General Hospital, on the death of his widow.

TWO CENTENARIANS. — The celebration of the one hundred and third anniversary of a birth in Concord, N. H., and of the one hundred and second anniversary of a birth in Portsmouth, N. H., are reported in the daily press with apparent authenticity.

AN UNREGISTERED PHYSICIAN SENTENCED. — Ulderic St. Pierre was fined $500 and sentenced to jail for three months in the United States District Court, at Fall River, December 15, on the charge of practising medicine without being a registered physician.

NEW YORK.

DEATH OF DR. GEORGE W. BAKER. — Dr. George W. Baker, a prominent practitioner of Brooklyn, died of pneumonia at his residence in that borough on December 4th, at the age of sixty-one.

PUBLIC BATHS NEARLY SELF-SUPPORTING. — In the fifty-fifth annual report of the New York Association for Improving the Condition of the Poor, which has just been issued, it is stated that the number of bathers during the year at the People's Baths, in Centre Street Market Place, was 85,128 men, 15,048 women, and 15,509 children. These baths were started as an experiment, without belief that they would prove self-supporting, but good management has made them nearly so.

A STATE SANITARIUM FOR CONSUMPTIVES RECOMMENDED. — A committee of the State Senate appointed at the last session of the Legislature to consider the advisability of establishing a State home for consumptives held a meeting at the City Hall on December 13th, when several experts in pulmonary disease appeared before the committee and urged the recommendation of such a sanitarium in the Adirondacks.

A PRIEST OPENS A SANITARIUM. — A Roman Catholic priest has purchased a site in Jersey City for a sanitarium, which he proposes to construct as a rival of the Keely Cure establishments. He has not made public his plan of treatment, but he states that after years of close study of the various remedies for inebriety he has devised a method of physical treatment which has proved most efficacious in removing the desire for drink.

TYPHOID FEVER AND THE PATERSON WATER-SUPPLY. — An outbreak of typhoid fever of considerable proportions has lately developed in Paterson, N. J., and the Board of Health, having failed to find any other source for the disease, has come to the conclusion that it is due to a contamination of the water-supply and ordered an investigation of the condition of the latter. One would think that in a flourishing city like Paterson the health authorities would keep up such a constant supervision of the water-supply that any contamination would be detected before it had had time to produce such serious results.

DEATH OF DR. EDWARDS HALL. — Dr. Edwards Hall, formerly one of the most prominent physicians of New York, died at his residence in that city on December 10th. He was born in Washington County, N. Y., October 16, 1818, and was graduated from Hamilton College in 1840. He received the degree of M.D. from the Albany Medical College in 1844, and after coming to New York became one of the founders of the Academy of Medicine.

DEATH OF DR. NATHAN S. KING. — Dr. Nathan S. King, of Yonkers, N. Y., died on December 11th, of pneumonia. He was born in Fishkill, in 1824, and was graduated from Williams College in 1849, and from the College of Physicians and Surgeons, New York, in 1852.

REINSTATEMENT IN THE HARLEM HOSPITAL. — On December 15th, Dr. Thomas H. Manley was reinstated as Visiting Surgeon in the Harlem Hospital. Three years ago twenty-eight physicians were dropped from hospital service in New York, no charges of any kind being preferred against them. This was an unprecedented proceeding in the history of the Department of Charities, and was supposed at the time by many to be the result of political and medical college intrigues.

ANNUAL DINNER OF THE MEDICAL DEPARTMENT OF COLUMBIA. — The annual dinner of the Alumni of the Medical Department of Columbia University was held on December 8th. Among the speakers were Drs. L. H. Sayre, Charles McBurney, J. G. Curtis, F. P. Kinnicutt, President Low and the Rev. George B. Van De Water, Chaplain of the University. In the course of his address, Dr. Low paid eloquent tributes to the memory of Dr. John Blair Gibbes, who fell in battle, and Dr. Lindheim, who died of disease contracted in the discharge of duty in the army.

DECENNIAL OF THE BABIES' HOSPITAL. — The decennial anniversary of the Babies' Hospital, founded by the Post-Graduate Medical College, was celebrated on December 8th. Dr. L. Emmett Holt read the report of the Medical Board, and in his annual report Dr. T. E. Satterthwaite, President of the Board of Directors, stated that the Cribside Committee of young ladies had raised $5,000 for the building of a nurses' home at Oceanic, N. J.

THE NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL. — The annual meeting of the Board of Trustees of the New York Orthopedic Dispensary and Hospital was held on December 8th, and a large number of visitors inspected the wards and machine shop on the occasion. The report of Dr. Newton M. Shaffer, Chief of the Medical Staff, showed that during the year 110 patients were treated in the hospital department and 3,420 in the dispensary.

DEATH OF DR. SALMON P. COHEN. — Dr. Salmon P. Cohen died of pneumonia at his residence in New

York on December 6th. He was born in Germany, in 1845, and came to America in 1860. He afterwards returned to Germany, and was graduated in medicine at Leipsic in 1877. He had practised successfully in New York for twenty years.

Death of Dr. T. H. Huzza. — Dr. T. H. Huzza, of Atlanta, Ga., died on December 8th, at the New York Hospital, after an operation for appendicitis. The appendicitis was of traumatic origin, and was due to an injury received a few days previously on a railway train while on his way to New York.

THERAPEUTIC NOTES.

Uterine Cancer.[1]

R	Acidi salicyl.	gr. viii
	Sod. salicyl.	ʒ iii
	Tr. eucalypti	ʒ vi
	Aq. destil.	ʒ vi

M. Et. sig. Three tablespoonfuls in a quart of water for injection every three or four hours.

Pertussis:[2]

R	Tinct. bellad.	ʒ ii
	Phenacetine	ʒ i
	Brandy	ʒ iii
	Fl. extract chestnut leaves	ʒ xii

M. Sig. Ten drops every two to six hours for a child one year old; a child ten years old may be given as much as a teaspoonful.

Correspondence.

"THE MEDICAL DEPARTMENT OF THE ARMY AND THE SPANISH WAR."

Washington, D. C., December 12, 1898.

Mr. Editor: — Your editorial of December 8th on "The Medical Department of the Army and the Spanish War" is so unjust to the officer at the head of that department that it cannot be allowed to pass unnoticed.

In the first place, it is very unfair to simply assume that Surgeon-General Sternberg did not recognize the inadequacy of the medical department and do what he could to have it increased. No one who knows this officer personally would say that he was not "forceful or earnest" or unlikely to push a matter he was interested in, though it is manifestly impossible that the details should be known. "To appeal to the profession at large throughout the country for its support and influence," as suggested, in bringing any matter to the attention of his military superiors is a measure entirely out of keeping with military methods, and could not for a moment be thought of.

Reference is made to the first and fourth paragraphs on page 4 of the last report of the Surgeon-General of the Navy. The first refers to examination of applicants for contract surgeons in advance of authority for their employment. Of navy conditions nothing is known, but it was certainly impracticable to take any steps in the army looking to the employment of contract surgeons before authority to employ them and money for the necessary expenses to be incurred had been given. Contract surgeons were appointed only upon the highest professional endorsement. It cannot be said that the services of these gentlemen were not generally satisfactory.

The second allusion to report referred to the prompt fitting out of the United States navy hospital ship *Solace*. She is certainly a great credit to the medical department of the navy. It is also true, however, that very early in April, it is understood, the fitting out of an army hospital ship, in case of war, was advocated by General Sternberg. That its fitting out was delayed was no fault of his, and the ship *Relief*, with her sister ship *Missouri*, has rendered most excellent service.

General Sternberg is said to have "reached the surgeon-generalcy through political methods"; "that his life training has been that of a laboratory man," and, therefore, he has been found wanting. The first is pure assumption, of which there is not a particle of probability to one who knows this officer. His appointment in 1893 by President Cleveland was undoubtedly based upon his long and distinguished career as a medical officer and his conspicuous services in the investigation into the causes of yellow fever (1887–1889) and in connection with the successful quarantine against cholera in 1892. As to the second, what are the facts? General Sternberg entered the medical service in June, 1861, rendered most efficient service during the war of 1861-5, in the field, in battle, in charge of general hospitals, in temporary charge of medical director's work. After the war he served at military posts, in cholera epidemics and on Indian campaigns. It was not until 1877 that he took up the practical study of bacteriology, and this, be it remembered, to fit himself the better for the important duties devolving upon him as a member of the Havana Yellow Fever Commission of the National Board of Health.

It is impossible to take up all the statements in your editorial in detail, but I note in passing the remark as to the advantage in giving large discretion to officers at a distance as necessary in war times. This advantage was not only recognized by the surgeon-general, but acted on throughout the department. Officers were given the very widest latitude and discretion wherever it was of advantage to the public service. The difficulty was that many were disinclined to take it and to assume responsibility. The difficulties that have had to be met by the surgeon-general and the medical department would be better understood if it is borne in mind that the United States is not a military nation. The very sentiment of the people is against a standing army and preparation for war. The whole appropriation for the medical department in peace times was but $130,000 yearly — sufficient for the small army then existing, which was always ready for emergencies, but allowing nothing to provide in advance for an army expanded ten times, as it was in a few weeks for the Spanish War. Not only so, but few believed up to the last moment that there would be any war, nor was it until war was actually declared, late in April, that authority was given to take any steps involving the expenditure of money or put the medical department on a war footing. All that was possible to be done in advance was done. When the suddenness with which an army of over two hundred and fifty thousand was extemporized is considered, how supplies (many of them of special pattern for military use, such as field litters, pouches, etc.) had to be manufactured and distributed, a large force of medical men and nurses obtained, general hospitals organized, hospital ships and trains fitted out, sanitary rules laid down, the officer who planned and carried out these varied operations must be granted by any candid man to have shown energy and executive ability of a high order.

It is hoped that this brief statement, which is written without Surgeon-General Sternberg's knowledge, but by one who knows what he writes, will be, in justice to him, admitted to your columns.

[We are glad to publish the enclosed letter from an official occupying an important position in the medical service of the United States, at the earliest possible moment after its receipt. The editorial in question was written after a careful consideration of the surgeon-general's own report. A reconsideration of the editorial in the light of the letter tends to confirm the positions therein taken. The second paragraph alone of our correspondent's letter goes far towards this result. We desired to accord General Sternberg a full share of all possible credit. We were not unmindful of the difficulties encountered, whether in or out of Congress. Our correspondent has apparently missed the spirit

[1] Le Progrès Médical, No 40, 1898.
[2] Lancaster. The Indian Lancet, September 1, 1898.

of our article, which we still venture to hope may have some influence, inducing those in charge of the surgeon-general's office to carefully consider reorganization. — ED.]

[Special Correspondence.]

SURGERY IN PARIS.

(Concluded from No. 24, p. 611.)

IN my wanderings in Paris I saw surgical work in ten hospitals. Everywhere I met courteous welcome, and therefore, in view of the fact that I am criticising surgical methods, I prefer not to name either hospitals or surgeons.

The first surgery which I saw was in an amphitheatre with floor of stone which was black with dirt and the surrounding wordwork was covered thickly with dust. The surgeon and his assistants cleansed their hands but not thoroughly. Instruments were in dry trays covered with gauze. Ligatures were catgut taken from coils which lay upon cloths supposed to have been aseptic but were exposed to the dust of the room and germs from many visitors who were admitted in street dress. Toilette of patient once would have been thought excellent, but, notwithstanding the scrubbing was followed by douching the skin with strong alcohol, it was perfunctory. I prefer Kocher's method of twofold preparation of the patient, once before the patient is brought to the table, to which he comes in aseptic bandages, and again after being placed upon the table, the second scrubbing and douching being continued until the knife enters the tissues.

In the operation in question: At its close the wound was wiped clean but was not washed in aseptic water of any sort. The after dressing was good, many dense sheets of charred cotton wool being last applied. The operation was not especially cleanly. Tables and bowls were of glass and asepticism was fair but far from perfection. Chloroform was the anesthetic.

At a *second* hospital, once shockingly dirty, I found a new pavilion including a most excellent and brightly lighted operating-room in which I had the satisfaction of seeing something like asepsis. Surgeon and his two or three assistants were dressed in special suits, including white linen trousers. The toilette of their hands was sufficiently thorough. The glass tables and basins were clean and wholesome. Gauze sponges and cloths were taken from the canister by the surgeon, the gauzes were seized and applied by means of instruments, the receptacle being immediately closed. Toilette of patient was not sufficiently prolonged. Trays were purified by pouring alcohol into them and then setting fire to the fluid. Instruments were all boiled and laid in the tray upon aseptic cloth, but — and this is a serious point — instead of being kept in aseptic fluid they remained exposed to the air and were surrounded by many visitors, who were admitted without the necessary baked linen coat. The silk ligatures were wound upon dainty spools of glass, but these, instead of being kept immersed, lay among the exposed instruments, the ligatures were cut from them by the bloody fingers of the assistant and therefore, when used, were not clean. During the operation I did not see one instrument cleansed nor thrown into fluid. They were laid down and taken up just as they were until the operation was completed. Results here of course must be less perfect than they would be if greater care were used. The wound was wiped clean but not washed. The room was nice and sweet and clean, but still these departures from my standard were disappointing. Ether was the anesthetic. There was a card requesting silence, etc.

Third Hospital. — The old place has now one completed pavilion and others are in process of construction. The new wards are clean and modern. I saw many good results of gynecological operations in severe cases.

The operating-room is of the typical modern sort; tables and basins of glass. The surgeon is extremely particular as to asepsis. No visitor is admitted without the freshly baked linen blouse. Instruments are kept submerged. The surgeon does a dry operation, uses catgut, ties three knots after the surgical knot. Toilettes excellent. Operation cleanly as were all appurtenances. This surgeon removes everything but underclothing and dresses in a special spotless suit. During the operation constantly watches the clock to time his work; is excitable and irritable; uses the card asking silence, etc. Chloroform the anesthetic.

Fourth Hospital. — Surgeon operates in an unused ward at the top of the building — not a proper room for operations and it was not clean. Visitors admitted without precautions. Chloroform is given. Instead of gauze ordinary sponges are used. Surgeon floods his wounds with hot salt water; uses catgut externally, silk internally. During the operation he washes his hands in the fluid in which instruments are submerged. The entire procedure lacked care. Assistants abounded.

Same Hospital. — Surgeon operates in a dirty amphitheatre; uses dry asepsis. Instruments exposed. Ether the anesthetic. Visitors admitted in street apparel.

Fifth Hospital. — Here I found airy, bright, clean pavilion wards, finished in gloss paint. The operating-room is a charming, exquisitely clean apartment in an isolated pavilion.

Instruments in a dry, gauze-lined tray. Dry asepsis. Everything was nicely done, the surgeon being a clever and very neat operator; has very few assistants and does his work quickly, is calm and speechless during the operation, which is cleanly and nearly bloodless; has card requesting silence. Visitors admitted without precautions and instruments and ligatures exposed to the air.

Sixth Hospital. — The operating-room is in an old wooden building modernized as to pavement and fittings. Great aseptic care is used, but I observed that the canister of sponges, as all gauze sops are called in Paris, stood uncovered near an open window throughout the operations and the wind was high. Again, I noticed that the door of communication with the corridor was left open during long periods of time. This corridor was on the ground floor, all its windows and doors were open and it contained many individuals who were uncleanly.

The toilette of the patient was the best and most thorough which I saw in Paris and was continued up to the moment of introduction of the knife, the part being flooded and scrubbed with ether at the last moment. But the pubes were only half shaved, the operation being *per vaginam*. The wound was frequently flushed with sublimate. Catgut was the only ligature used. The internal lips of wound in a laparotomy were closed by the only continued suture I had seen or did see in Paris. It seems to me better and sounder than the interrupted. Constant and excellent cleansing of the hands was the rule. Visitors were admitted in street dress. During the operation the surgeon talked steadily with assistants and visitors, was courteous to his aids and never in the least excitable. He and his procedures leave a good and nearly satisfactory impression. Chloroform was the anesthetic. Room fairly clean. *Another surgeon* has a fine, new operating-room, typically modern but not clean. Instruments upon gauze in a dry tray. Those in use thrown pell-mell among other clean ones, as were also bloody gauze sponges, which were used over and over again. Canisters of gauze left open until emptied. Wound not properly enclosed by gauze cloths; it was not touched by any fluid. Ligatures, catgut and silk. (On only one occasion have I seen torsion used in Paris.) The skin about the wound was not nicely cleansed before dressing. Visitors admitted in street dress. Surgeon not fitly attired; his shirt sleeves, rolled back, came into close contact with the wound. Chloroform used. I made ward visits with *another* genial and courteous surgeon, whose diagnostic ability was striking. Care of patients indifferent. Wards crowded and not clean. It was here that I saw the compound fracture to which I have already alluded and which was in a bad condition. This surgeon, whose work was faulty, criticized the surgery of a *confrère*, whose procedures are modern and careful. His operating-room is in a new isolated build-

ing and was satisfactory. Ordinary as well as gauze sponges were used. Instruments in a gauze-covered tray. Ligatures lay among bloody instruments. The operation was a hysterectomy and the removal of a large cystic tumor. Much blood was lost and the whole procedure was slovenly. *Débris* and "gurry" from the wound were thrown upon the floor. During the operation mucus oozed from the uterus into the abdominal cavity, which was not afterward flushed. After the operation the nates, covered with involuntary discharges, and the vulva, were left soiled and unwashed. Washing of the surface of abdomen after closure of the wound was very imperfect. The operation was roughly done and asepsis was negligent — a great contrast to the cleanliness of other surgeons. But no surgeon in Paris equals Kocher in thoroughness of care and asepsis. The surgeon to whose work I am alluding claims a low death-rate. I saw many of his patients after operation. They averaged well and fever was never high. The anesthetic was chloroform.

Seventh Hospital. — The surgeon had a pavilion operating-room which was bright and clean and showed excellent asepsis. The operator was neat, quick and very cleanly. His operations were nearly bloodless. But I observed that he wound an ordinary sponge about the drainage-tube left in the wound after an operation for salpingitis. Instruments were in dry trays; bowls purified by burning alcohol. A woman shaved the pubes of the patients, all of whom were women. There are women attendants in all the surgical clinics of Paris. This surgeon had but two male assistants and the work went better than with other surgeons who have six helpers. Ether was the anesthetic. Visitors admitted in street dress. At this hospital the surgeon-in-chief is antiquated and his methods are not up to date.

Ricord Hospital. — At this institution I visited the clinic of Gueyrat, who showed me much courtesy. His clinic was devoted to venereal out-patients all of whom, on this occasion, were men. His examinations were quick and decisive. His diagnosis was lucid. Asepsis was good. Each patient came into the room wearing his hat, which he did not remove, and having exposed to view the member to be examined. The effect was comical but the arrangement facilitated things. Remedies and advice were rapidly given by drawing upon a series of printed prescriptions followed upon the same sheet by a regimen and detailed counsel. The prescriptions were chosen from a row of boxes in accordance with the needs of the patient under examination and were signed by the physician. This saved time, for Gueyrat simply referred each patient to the printed prescriptions and then dismissed him. It was a very instructive clinic, for nearly every variety of venereal disease was presented. On the other hand, there was a pathetic element, which may be illustrated by the case of one patient to whom Gueyrat abruptly announced that he had syphilis, that he would not be cured for five years and that, for obvious reasons, he must at once tell his wife. The poor devil's face was a study. "But what can I say to her?" "Say you smoked a bad pipe. Say that you wrestled with one of your chums and that he made you ill. It isn't my affair. Say what you like. But you must tell your wife." This was kindly but decidedly said. After I had seen *eighty to one hundred* patients I asked the assistant how often such a large number of men applied for treatment. "Every day" was the reply, "and there are other similar services in this hospital." It must be remembered too that each new clinic was attended by many new patients. I have never largely followed venereal clinics and my reflection that this astounding condition of things, which I never before had seen in such huge proportions, could not be seen out of Paris, might perhaps have been an error. The St. Louis Hospital treats syphilitic skin affections and there also patients abound. The course of lectures upon syphilis at the St. Louis is excellent.

At the *Necker Hospital* I attended the service of Guyon, who is a celebrity in the treatment of diseases of the urinary passages. In his absence, Alboro, his assistant, held the clinic. The audience was large, being composed mostly of visitors, who sat in rows. Alboro is a young and handsome *Cuban*. This discovery made him the more interesting to me. He spoke fluent French with an accent. In explanation and demonstration he was very clear and as an operator in litholopaxy and the division of strictures, etc., he was supple, graceful and remarkably quick. Patients abounded. Asepsis was only fairly good.

While at the *Charité* I followed Potain during a ward visit. He still continues his gentle, precise methods of diagnosis. As a lecturer in the amphitheatre it is not worth while to try to hear him, even though one easily understands French, for his voice is so feeble that on the front benches he cannot be heard in a room on the back seats on which I used to hear him with comparative ease.

At one hospital the assistant who gives the anesthetic has chloroformed two thousand patients with only one death, which, he said, occurred at the beginning of his service, thereby indicating that the death was partially due to his lack of experience. This gentleman keeps for each patient chloroformed a card upon which he notes the date of operation, the name of surgeon who operates, the diagnosis, name of chloroform assistant, profession, age and sex of patient, condition of heart, of pulse, lungs and respiration before anesthesia begins, the hour and minute of application of the chloroform, quantity used, whether pure or mixed, condition of muscular relaxation, of pulse and respiration after sleep begins, direction of ocular axes before and after anesthesia and finally the palpebral reflex. These cards are filed and later the notes are classified.

A surgeon showed me the photograph of a singular tumor which he had recently removed. The pedicle of the growth was attached to the uterus, extended outward *per vaginam* and there expanded into a cauliflower enlargement, the size being that of the closed fist.

Paris spends 40,000,000 francs upon her hospitals. Only three or four are supported by private subscription. There is great liberality in supplies, but one surgeon surprised me by saying that surgical utensils are too luxurious and costly. They are simply of the best quality and he is behind the times.

Between Parisian surgeons and their assistants there exists a pleasant *bonhomie* and an agreeable familiarity of which the young men never take advantage. The desire of the surgeon to make his assistants familiar with his reasons for all that he does is very evident.

Here ends my experience, which seems sufficiently extensive to enable me to say that, while so far as operation goes, surgery in Paris is most praiseworthy, there is, in many hospitals, large room for improvement in aseptic methods and an evident lack of care in details. This is merely my opinion, but is one with which I think that all who believe in strictness of procedure will agree.

Yours truly,
H. O.

HOLOCAIN IN INFECTED CORNEAL ULCER.

BOSTON, December 20, 1898.

MR. EDITOR: — Prior to the publication of a short paper on the anesthetic and therapeutic uses of the new drug holocain, I desire to call the attention of the profession to certain experiments I have been making and results I have obtained in a hitherto untried field.

They are based on the bactericidal properties of this agent, so carefully investigated by Heinz and Schlösser. Reasoning therefrom, it seemed that it might prove beneficial in cases of infected corneal ulcer. For some months past I have used it in this class of cases, thus far with excellent results.

Dr. Standish, of this city, and Dr. R. H. Derby, of New York, have kindly sent me the result of their experience in this direction, which thus far goes to confirm my own. I write at present simply to urge others to aid in ascertaining whether the favorable results thus far obtained are coincidences or consequences.

Very truly yours, HASKET DERBY, M.D.

METEOROLOGICAL RECORD

For the week ending December 10th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S....4	30.09	40	42	38	68	94	81	E.	E.	20	34	O.	R.	.06
M...5	29.35	42	46	37	83	62	73	S.W.	W.	12	24	O.	O.	.39
T....6	29.84	38	41	35	62	67	64	W.	S.W.	20	10	O.	O.	
W...7	29.92	36	41	32	72	52	62	S.W.	S.W.	12	11	C.	C.	
T....8	30.12	30	34	26	63	42	52	W.	W.	10	20	C.	C	
F....9	30.20	23	28	18	59	54	56	N.W.	W.	13	8	C.	C.	
S....10	29.76	28	33	22	55	57	56	W.	W.	15	18	O.	O.	
☞	29.90		38	31			63							45

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 10, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	3,438,899	1173	311	7.28	18.06	1.28	1.20	2.56
Chicago . .	1,619,226	—	—	—	—	—	—	—
Philadelphia .	1,240,226	436	114	7.13	15.54	.46	1.61	4.60
St. Louis . .	623,000	—	—	—	—	—	—	—
Boston . .	528,463	201	53	3.43	16.66	.49	1.47	.98
Baltimore . .	50,389	182	58	7.15	22.55	.55	.55	6.05
Cincinnati . .	405,000	—	—	—	—	—	—	—
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	295,000	97	28	13.39	11.33	2.06	7.21	2.06
Washington . .	277,000	119	24	15.30	11.05	—	7.65	6.80
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	64	16	7.80	17.16	4.68	—	1.56
Nashville . .	87,754	28	6	7.14	3.57	—	—	3.57
Charleston . .	65,165	19	6	5.26	—	—	5.26	—
Worcester . .	108,240	24	6	16.66	12.50	4.16	4.16	8.32
Fall River . .	93,919	—	—	—	—	—	—	—
Cambridge . .	89,724	30	10	6.66	13.33	3.33	—	3.33
Lowell . . .	88,641	30	10	3.33	10.00	—	3.33	—
Lynn . . .	66,703	—	—	—	—	—	—	—
New Bedford .	66,340	20	9	15.00	5.00	—	—	10.00
Somerville . .	61,101	—	—	—	—	—	—	—
Lawrence . .	57,263	25	10	12.00	12.00	—	4.00	40.00
Springfield . .	56,501	9	1	—	9.09	—	—	—
Holyoke . .	43,424	12	3	25.00	8.33	—	8.33	—
Brockton . .	37,278	11	2	—	9.09	—	—	—
Salem . . .	36,883	8	0	—	12 50	—	—	—
Malden . . .	34,613	12	4	8.33	16 66	—	—	—
Chelsea . . .	33,468	7	2	—	—	—	—	—
Haverhill . .	27,622	7	2	14.28	28.56	—	—	14.28
Gloucester . .	30,589	6	2	—	—	—	—	—
Newton . . .	29,716	10	0	10.00	10.00	—	—	10.00
Fitchburg . .	29,438	11	2	9.09	9.09	—	9.09	—
Taunton . . .	28,167	11	1	—	—	—	—	—
Everett . . .	25,338	3	1	33.33	—	—	—	33.33
Quincy . . .	23,549	5	1	—	—	—	—	—
Pittsfield . .	22,643	—	—	—	—	—	—	—
Waltham . . .	21,812	10	2	—	20.00	—	—	—
North Adams .	20,971	6	2	16.66	16.66	—	—	16.66
Chicopee . .	17,842	5	1	—	—	—	—	—
Medford . . .	16,511	5	1	—	60.00	—	—	—
Newburyport .	14,915	4	1	—	25.00	—	—	—
Melrose . . .	14,032	4	3	—	—	—	—	—

Deaths reported 2,610; under five years of age 694; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 206, acute lung diseases 448, consumption 338, diphtheria and croup 100, typhoid fever 48, diarrheal diseases 27, whooping-cough 15, scarlet fever 8, cerebro-spinal meningitis 5, measles 3.

From whooping-cough New York 7, Philadelphia and Pittsburg 2 each, Boston, Washington and Holyoke 1 each. From scarlet fever New York 6, New Bedford and Lawrence 1 each. From cerebro-spinal meningitis New York 2, Nashville, Holyoke and Malden 1 each. From measles New York 3.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,378, for the week ending December 3d, the death-rate was 19.1. Deaths reported 4,108; acute diseases of the respiratory organs (London) 340, diphtheria 108, measles 87, whooping-cough 71, fever 71, diarrhea 49, scarlet fever 40.

The death-rates ranged from 12.4 in Burnley to 27.8 in Wolverhampton; Birmingham 21.3, Bradford 18.7, Croydon 17.2, Gateshead 17.1, Hull 16.1, Leeds 17.4, Liverpool 21.3, London 18.2, Manchester 21.7, Newcastle-on-Tyne 24.8, Nottingham 18.1, Portsmouth 19.3, Salford 24.2, Sheffield 18.1, Swansea 20.4, West Ham 21.1.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING DECEMBER 15, 1898.

BAILHACHE, PRESTON H., surgeon. To proceed to Philadelphia, Pa., to inspect the barge "Protector." December 2, 1898.

BANKS, C. E., surgeon. To proceed to the ports of Boothbay Harbor, Portland, Me., Fall River and Boston, Mass., as inspector. December 2, 1898.

GLENNAN, A. H., surgeon. To proceed to San Juan, Porto Rico, for special temporary duty as quarantine officer. December 9, 1898.

STONER, J. B., passed assistant surgeon. Detailed to inspect stations of the third class. December 5, 1898.

NYDEGGER, J. A., passed assistant surgeon. To proceed to New Orleans, La., for duty and assignment to quarters. December 15, 1898.

CLARK, TALIAFERO, assistant surgeon. To proceed to South Atlantic Quarantine Station and assume temporary command. December 15, 1898.

LAVINDER, C. H., assistant surgeon. To proceed to Cape Charles Quarantine as inspector of unserviceable property, and then to proceed to Washington, D. C., for further orders. December 7, 1898. To proceed to Philadelphia, Pa., for temporary duty. December 10, 1898.

MCMULLEN, JOHN, assistant surgeon. To report at Bureau for special temporary duty. December 10, 1898.

FOSTER, M. H., assistant surgeon. Granted thirty days' extension of leave of absence on account of sickness. November 27, 1898.

Board convened to meet at Washington, D. C., at 11 A. M., December 14, 1898, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon CHARLES E. BANKS, Chairman; Passed Assistant Surgeon G. T. VAUGHAN, Passed Assistant Surgeon E. K. SPRAGUE, Recorder.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, December 28, 1898, at 8 P. M.

Papers: Dr. R. A. Kingman, "Report of a Second Case of Double Ovariotomy during Pregnancy; Hydatiform Mole."

Dr. W. M. Conant, "Extra-uterine Pregnancy with Report of Cases."

At 9 o'clock, election of chairman.

F. W. JOHNSON, M.D., *Chairman.*
C. H. HARE, M.D., *Secretary.*

THE ASSOCIATION OF AMERICAN ANATOMISTS. — The eleventh session of this Association, meeting in conjunction with the affiliated societies, will be held in the rooms of the Department of Anatomy, College of Physicians and Surgeons (Medical Department, Columbia University), New York City, No. 437 West Fifty-ninth Street, Wednesday to Friday, December 28 to 30, 1898. A very interesting programme is published, subject to modification by the Association or the Executive Committee after assembling.

The President of the Association is Dr. B. G. Wilder, of Ithaca, N. Y., and the Secretary Dr. D. S. Lamb, of Washington, D. C.

THE AMERICAN PHYSIOLOGICAL SOCIETY will hold its annual meeting at New York City, December 28th, 29th and 30th, the first day at the College of Physicians, the second (in conjunction with the American Psychological Association) at Schermerhorn Hall, Columbia University, and the third day at the University and Bellevue Hospital Medical College.

BOOKS AND PAMPHLETS RECEIVED.

Are Complete Castrates Capable of Procreation? By F. R. Sturgis, M.D., New York. Reprint. 1898.

The Phonendoscope. By Aurelio Bianchi, M.D., Parma. With 37 illustrations by A. George Baker, A.M., M.D., Physician-in-Chief of the Chinese Medical Dispensary, Philadelphia. Philadelphia: George P. Pelluy & Son. 1898.

Lecture.

THE ARTHRITIS OF CEREBRO-SPINAL FEVER.[1]

BY WILLIAM OSLER, M.D.,
Professor of Medicine, Johns Hopkins Medical School, Baltimore, Md.

Since March, 1898, eleven cases of cerebro-spinal meningitis have been admitted to the wards. The disease has been prevailing to a slight extent in the city, scarcely enough to justify the use of the term epidemic, but as this is the first opportunity we have had since the opening of the hospital to study it these few cases have been most interesting. A lecture upon seven of them, which I gave to the post-graduate class on June 15th, has already appeared in the *Maryland Medical Journal*, July 16th. To-day I wish to call your attention to a feature of the disease which was not illustrated by any of the previous cases, namely, the remarkable joint complications.

Arthritis is a very inconstant symptom. North, in his valuable "Treatise on a Malignant Epidemic commonly called Spotted Fever,"[2] speaking of the more unusual symptoms, mentioned "swelling, like rheumatism, of the joints." In his collection of communications from different physicians describing the early epidemics between 1806 and 1811 several of the correspondents mention inflammation of the joints, like the acute rheumatism. A more specific early statement is that given in the admirable report on the disease by Thomas Welch, James Jackson and John C. Warren, a committee appointed by the Massachusetts Medical Society in 1810. "In some cases swellings have occurred in the joints and limbs; these have been very sore to the touch, and their appearance has been compared to that of gout. The parts so affected feel as if they had been bruised. These swellings are in the smaller as well as in the larger joints, and are often of a purple color. Those on the small joints especially sometimes disappear as the disease approaches its crisis.[3]

In many of the carefully studied epidemics in France and Germany special attention has been paid to the joint lesions of the disease. In the recent outbreak in Boston arthritis occurred in only 6 of 111 cases.[4]

In Ward F there have been two patients with severe cerebro-spinal meningitis, in both of whom arthritis was an early and quite marked manifestation.

Case I. *Clinical Summary.* Abrupt onset with chill; fever; delirium; stiffness of the neck; enlargement of the spleen; multiple arthritis; patchy erythema of the skin with purpura; lumbar puncture; demonstration of diplococcus intracellularis in the meningeal exudate, in the blood, and in the pus from knee-joint; death on the sixth day.

Anatomical Summary. Purulent cerebro-spinal meningitis; extensive collapse with areas of pneumonia at bases of both lungs; purulent arthritis.

At the ward class on Saturday, November 5th, in one of the small rooms behind Ward F I found Jacob B., age twenty-four years, who had been brought to the hospital the evening before in a state of delirium and unconsciousness. He was a medium sized, fairly-well nourished man, with dark features; he looked very ill. The decubitus was dorsal, with the face and neck turned to the left, in which position they remained during the examination. He could not be roused. The pupils were of medium size, equal, did not react well to light, no strabismus. There was no discharge from the nose or ears. The respirations were rapid, 36 per minute, the breath foul and pungent. The pulse was 132. The lips and mucous membranes were of good color, and the tonsils and throat were free from exudation. There were no herpes. The condition which attracted most attention was that of the joints. The right wrist was swollen and puffy and a little red. The skin over the knuckles of the hand was reddened and the joints seemed a little swollen, and there was a slight erythematous swelling over one or two of the phalangeal joints. The wrist was less swollen; there was a marked reddening over the styloid process of the right ulna. Both elbows were reddened and swollen, particularly over the olecrana, and on the left side a brawny swelling extended for several inches over the triceps. The redness was very intense, the inflammation seemed superficial, and the swelling did not extend to the front of the joints. The right knee was swollen and there were purplish-red blotches over the patella. The left knee was less swollen, but presented the same blotchy erythema. There was tenderness in the calves of both legs, and while examination of the joints caused no sign of wincing, deep pressure in the right calf caused an expression of pain to pass over his face. There was blotchy redness without much swelling over the malleoli, and on the inner surfaces of both feet there were spots of purpura.

The examination of the lungs showed a decided flatness in the lower right axilla, extending into the intrascapular area, with harsh, not typically tubular, breathing, and a few crackling râles. The heart sounds were clear. The abdomen showed no rose spots, was flat and a little tense; the spleen was enlarged and could be readily felt below the costal margin. On the evening of admission there was a leucocytosis of 17,000, which by the next morning had risen to 22,000.

While the limbs were perfectly flaccid, it was impossible to move the neck, which was so rigid that the whole trunk could be lifted by placing the hands under the head. The patient's temperature, which, on admission, was 101°, sank to 98° at 8 P.M., but had slowly risen, and at the time of examination was about 102°.

The patient's history, as obtained from the friends by Dr. Hastings, was that the illness came on rather suddenly, with a chill and nausea and vomiting, on Tuesday, the 1st, since which time he had been in bed and had fever. On Thursday night he was actively delirious. He first complained of much pain in the back of the head and neck; he had slight diarrhea, two or three movements daily, no epistaxis. When visited at his home by Dr. Hastings before admission to the hospital the delirium and stupor were marked, pulse 120, respirations 28, and there was great rigidity of the limbs.

It was evident that the patient was suffering with a very profound infection. The condition of the joints resembled that in an acute pyemia. The deep coma and the rigidity and stiffness of the neck were, however, suggestive of cerebro-spinal fever. The consolidation of the lower part of the right lung appeared

[1] Clinical Lecture, Johns Hopkins Hospital, November 9, 1898.
[2] Treatise on a Malignant Epidemic commonly called Spotted Fever, New York, 1811, p. 15.
[3] Medical Communications and Dissertations of the Massachusetts Medical Society, vol. ii, 1813, p. 135.
[4] Councilman, Mallory and Wright; Report Massachusetts State Board of Health, 1898.

to be pneumonic, but while meningeal symptoms in ordinary pneumonia are not uncommon, they are very rarely associated with stiffness of the neck or rigidity of the limbs, and arthritis is an excessively rare event. Lumbar puncture was performed by Dr. Futcher, and 50 cubic centimetres of a turbid fluid with a few white stringy flakes was removed. Cover-slips showed diplococci resembling the diplococcus intracellularis. From the right knee about half an ounce of pus was obtained, which showed similar looking diplococci.

Throughout Saturday the patient grew progressively worse. His temperature rose to 103.5° in the evening. The leucocytes were 37,000 per cubic centimetre. The respirations increased to 60 per minute; the pulse became small and much more frequent, between 160 and 172. The right knee-joint became much more swollen, and the swelling and redness of the elbow-joints, and the metacarpo-phalangeal joints of the second and first fingers of the left hand and of the first phalangeal joint of the left ring finger were much more swollen. Both wrists were also more red. A marked change had taken place also in the lungs. The area of flatness on the right side had increased, and there was also in the subscapular region on the left side an area of flatness with distant tubular breathing. The stiffness of the neck was not so marked, and the patient moved the head about from side to side. The pupils were not irregular, and there was slight external strabismus of the left eye. Towards the evening purpuric spots appeared on the thighs, most extensive on the inner side. There was general muscular rigidity. The urine contained a large amount of albumin, the specific gravity was 1,024, and it contained many hyaline and granular casts. The symptoms progressively increased through the night, and he died at a little after ten o'clock on the 6th of November, on the morning of the sixth day of his illness. The temperature rose to 105.5° at 4 A.M., and remained above 105° until his death. Just before death the head was thrown backward by a quick contraction of the muscles, and there were movements of the limbs, particularly on the right side. Early in the morning of the 6th there was a diffuse purple mottling of the skin of the trunk and limbs.

The condition found post mortem you see illustrated in the specimens before you. Notice over the surface of the convolutions of the brain, more particularly, too, over the sulci on the right side, a creamy, purulent exudate; the same is seen over the upper part of the cerebellum, and to a less extent over the pons and medulla. There is very little exudate in the anterior portion of the base in the region of the optic chiasm. The cord presented a slighter degree of exudate, chiefly in the upper part; it was not involved to the same extent as in some other cases which came to autopsy in the spring.

The condition of the lungs is very interesting. You will remember that at the ward class on Saturday morning there was flatness in the lower right axilla and infrascapular region, with fine crackling râles and harsh, but not definitely tubular, breathing. Corresponding to this a large part of the lower lobe was dark in color, collapsed, and to the touch there were areas of consolidation. A very similar condition developed quite rapidly in the left lower lobe, and when removed it showed the same state, very dark in color, with here and there more prominent areas, also dark, but which felt much firmer and indurated. On inflation through the bronchus this dark, airless tissue was shown to be really in a condition of collapse, though there were areas of pneumonic consolidation scattered through it. The spleen was enlarged and soft. There were no special changes in the heart, though perhaps there were a few small beads of vegetation on the aortic cusp. There was suppuration in the right knee-joint; the other joints could not be opened.

Perhaps the most remarkable feature of this case is the widespread diffusion of the diplococcus intracellularis throughout the body. For the first time the organism has been isolated from the blood during life and from the joints. A full report upon this interesting aspect of the question will be given subsequently by Dr. Gwyn.

CASE II. *Clinical Summary.* Onset of illness with arthritis; continued fever; tentative diagnosis of typhoid fever; development of paraplegia; lumbar puncture; purulent meningitis; laminectomy; irrigation of the spinal membranes.

You remember that on last Wednesday, November 2d, I showed you a man from Ward F, John F., age twenty-five, a sailor, who was admitted October 29th, complaining of pain in the right hip and left ankle. He had knocked about the world a good deal, but he seemed to have escaped all serious illnesses, except an attack of gonorrhœa and of syphilis in 1894. In the spring of 1897 he received an injury to the hip and was eight weeks in hospital at Shanghai. Subsequently he was in hospital for three weeks at Yokohama, and was told that he had rheumatism.

His present illness began on Wednesday, October 26th, with pain in the right ankle, which became swollen and red. The next day the left ankle, and the following day his right hip, became painful. He felt feverish, but he had no headache. He was able to walk to the hospital. On admission his temperature was 104°. There were tenderness and stiffness in the right hip-joint, without swelling or redness. The left ankle was swollen, red and very tender. There was a slight redness and tenderness of the left wrist. I need not detail to you again the general negative condition on the very complete examination made by Dr. Hastings. One feature, for which indeed I showed him specially last Wednesday, was the abundant crop of peliomata over his abdomen and thighs. Until the day you saw him his temperature had been pretty steadily between 102° and 104°. On the 2d it fell to 100°. We were very doubtful as to the condition. He had more fever and looked much more ill than in an ordinary attack of acute rheumatism. We suspected typhoid fever. The inflammation in the ankle-joint subsided in a couple of days. A suspicious feature was that on the 31st and on November 1st he complained of a great deal of pain in the back and hips, and, as he said, all over, and he had several profuse sweats. On November 1st it was noticed that he held his head in a retracted position, but there was no stiffness of the neck muscles. He was delirious at times, but as a rule answered questions intelligently. The joint symptoms had subsided completely at this date. During the past week there have been remarkable changes. We suspected, as I said, typhoid fever, though he had no rose spots and the Widal reaction was not present. The spleen, however, was palpable and he looked very much like a patient with enteric fever.

On November 4th he had retention of urine, and he did not seem to be so well, though the temperature was lower, not above 103°, but he had delirium.

There was no retraction of the head or stiffness of the neck. On the 4th, 5th and 6th he still had to be catheterized. At the examinations to this date nothing special had been noted about his legs. I remember quite well that on the 3d, when I examined the condition of the ankle and of the hip, he seemed to use the legs quite naturally. At 3.30 P. M. on the 6th, as he was being prepared for an enema, it was noticed that the legs had a very helpless appearance, and when the patient was asked to move them he could not. On further examination complete anesthesia was found as high as the level of the navel, above which there was a band six or seven centimetres in width of hyperesthesia. At 5 P. M. the patient was in the same condition, only the abdomen had become more full, and there was extreme tenderness. The legs were quite limp, and the patient was quite unable to move them. There was slight stiffness of the neck, most marked on trying to bend the head forward. The reflexes, superficial and deep, of the legs were absent, rectum reflex was present. At 6 P. M. lumbar puncture was performed and about two drachms of a thick, creamy, brown-tinted pus removed. It showed microscopically cells and numerous diplococci, mostly extracellular and in clumps; some of these looked very like the diplococcus intracellularis. At 9 P. M. on the same evening Dr. Cushing exposed the lower part of the cord and a thick, purulent pus was drained away, coming chiefly from the lower part. The region of the cord seen looked hyperemic. A small catheter was passed under the dura, and the membranes were irrigated with normal salt solution, with which much pus escaped. The patient stood the operation well, but there has been no change since in the condition of the paralysis. He is rational and the temperature has not been so high. The leucocytosis persists, and is to-day 30,000 per cubic centimetre.

When the spinal symptoms developed we naturally thought of cerebro-spinal fever, and it very possibly is a case of this disease. The smears taken from the spinal puncture showed some suspicious-looking diplococci, though from cultures, both at puncture and operation, there have grown the staphylococcus pyogenes aureus. There is no evident source of infection, as is usual in cases of meningitis due to the ordinary pus organisms. It is to be regretted that cultures were not made from the inflamed ankle-joints when he first came into the hospital.

The infectious arthritides, while common in some fevers, are very rare in others. In acute rheumatic fever, the typical infectious arthritis, the nature of the poison is still unknown; it is probably specific and peculiar, and the joint lesions show little or no tendency to pus formation. The other infections differ very much indeed in the frequency with which joint complications occur. In the gonorrheal infection, the septic fevers, cerebro-spinal fever, Malta fever, dengue and scarlet fever they are common, while in measles, typhoid fever, small-pox and pneumonia they are exceedingly rare.

There are two points of special interest in these cases; first, the early onset of the arthritis. I confess that in Case II we were completely thrown off our guard. I suspected for a day or two rheumatic fever; then as the symptoms subsided and as the temperature kept up we thought possibly it might be an unusual instance of arthritis in early typhoid fever, as gonorrheal infection could be excluded.

Case I illustrates probably the maximum degree of involvement of the joint in cerebro-spinal fever. It shows, too, the rapidity and severity with which the complication may develop. When Dr. Hastings saw this man at his home on the third day of his illness the joints were sore and red and swollen.

The second point, of still greater interest, is the light which Case I throws on the nature of the infectious arthritides. The arthritis in cerebro-spinal fever brings up a question, much discussed of late years by neurologists, of the cause of the joint affections in diseases of the central nervous system. All grades — simple congestive synovitis with areas of painful redness resembling erythromelalgia, acute multiple synovitis and arthritis, extensive disorganizing suppuration of joints — are found in the acute and chronic forms of spinal cord disease. A very careful bacteriological study should be made of these cases. The joint lesion is usually regarded as trophic in character; and I think the general view has been that in cerebro-spinal fever also the arthritis is a secondary effect of the inflammation of the cerebro-spinal meninges. In this case the separation of the specific organism from the inflamed joints and from the blood demonstrates that the joint complication may be the direct effect of a widespread diplococcus septicemia.

Address.

REFORM IN MEDICAL EDUCATION.[1]

PRESIDENT'S ADDRESS BEFORE THE SOCIETY OF AMERICAN NATURALISTS.

BY H. P. BOWDITCH, M.D., LL.D., D.Sc.

THE choice of a physiologist as the presiding officer of the Society of American Naturalists might perhaps have justified me in selecting some of the problems connected with experimental physiology as the subject of my remarks this evening but, as questions of this sort are wont to awaken but a languid interest except among those who are themselves engaged in physiological research, I have thought it better to allow my choice of a subject to be guided by the fact that we are nearly all of us actively engaged in *teaching* as well as in *studying* our sciences, and to address you this evening upon some topic connected with education.

My own experience of twenty-seven years as a professor of physiology and of ten years as Dean of the Harvard Medical Faculty naturally inclines me to discourse upon the subject of medical education, and since the great profession of medicine demands from its practitioners a certain familarity with the fundamental truths of all the natural sciences, it can surely not be inappropriate to ask the representatives of those sciences to consider with me how far the progress of medicine and of the allied sciences has made it desirable to revise our methods of imparting medical instruction.

Let me say at the outset, that in speaking of the profession of medicine I use the term not in its narrow sense, to designate the art of curing disease, but in its broader signification, to include a study of the whole environment of man as far as it affects the pro-

[1] Delivered at the Annual Meeting of the Society of American Naturalists, New York, December 29, 1890.

duction and maintenance of a healthy mind in a healthy body.

In what I shall have to say on this subject I shall confine myself chiefly to the medical schools of this country, though it will be found, I think, that the conclusions to which I shall endeavor to lead you will have their application to medical schools throughout the world.

The most important event in the history of medical education in this country occurred some thirty years ago, when many of the principal schools abandoned the plan of giving a series of winter lectures, which were attended by all the students, irrespective of their proficiency, and established a graded system of instruction in which the studies of one year were preparatory to those of the next. Those whose experience in medical education is confined to the period since this change was made can scarcely appreciate the value and importance of the reform which raised the medical schools of the country from a condition in which they were aptly compared to joint-stock manufacturing companies concerned only in taking in as large an amount as possible of raw material in the shape of medical students and in turning out a maximum of the finished product, that is, doctors of medicine, with a minimum of cost to the producer. "Cheap doctors and plenty of them" seems to have been the motto of the medical schools of that period. Since this reform the medical schools of the country have been conducted on sound educational principles, and the best of them compare favorably with the medical schools of Europe.

During the last quarter of a century the improvement in medical education in this country has consisted chiefly in increasing the requirements for admission, in the lengthening of the course and in the extension of the laboratory method of instruction. Important as these improvements have been, it may fairly be asked whether they have kept pace with the requirements imposed upon teachers by the remarkable advance in every department of medicine during the last thirty years.

During this period we have seen the germ theory of disease established upon a firm basis, and extended so as to throw light upon a large number of morbid processes with which it was formerly supposed to have no connection. Antiseptic methods have revolutionized the surgeon's art. The study of the internal secretion of glands has led to the development of a system of glandular therapeutics. The use of the antitoxin treatment has robbed one at least of the most dreaded diseases of more than half of its terror, while the use of instruments of precision has increased the accuracy of our diagnosis in nearly all the ills to which flesh is heir.

At the beginning of this period it was possible to impart to an intelligent medical student in a three years' course of study a considerable fraction of the acquired medical knowledge of the time and to train him to safely use the comparatively simple methods of diagnosis and treatment then in vogue. At the present time were we to seek to give to the same student a similar proportion of the accumulated knowledge now at the disposal of the profession and to teach him the use of the refined modern methods for the study and cure of disease it may be reasonably estimated that a ten or even a fifteen years' course of study would be required. As it is obviously impossible to prolong the course of medical study to anything like this extent the question arises: In what way shall newly acquired knowledge in the science and practice of medicine be incorporated into the existing curriculum of the medical student?

Up to the present time this question does not seem to have been seriously considered. As new and important subjects have forced themselves upon the attention of the medical profession our schools have sought to meet the new condition simply by adding to the existing curriculum a more or less lengthy course of instruction on the subject in question. Thus the importance of enabling physicians to recognize pathogenic microbes has led to the establishment of a department of bacteriology in our principal medical schools, while the great advance made in the treatment of special classes of disease has occasioned the appointment of numerous professors of specialties, such as gynecology, orthopedic surgery, pediatrics, etc.

The medical curriculum has thus grown by what may be called, in biological language, a process of accretion, and there has been little or no attempt to make room for new instruction by the omission of less valuable courses or parts of courses, though in certain directions the advance of knowledge, by demonstrating the inaccuracy of previously accepted views, has led to a simplification of instruction. When it has been found absolutely impossible to add any further courses a remedy for the congestion of instruction has been found in the prolongation of the medical curriculum from three years to four.

It is of course evident that this process cannot be indefinitely continued. In fact, a slight study of the subject suffices to show that a limit has already been reached. Indeed, as long ago as 1870 Huxley was so thoroughly impressed with the crowded condition of the medical curriculum in England that he expressed "a very strong conviction that any one who adds to medical education one iota or one tittle beyond what is absolutely necessary is guilty of a very grave offence,"[2] and quite recently Prof. M. Foster in speaking of the enormously increased requirements in medical education has expressed himself as follows: "Now it is obvious that, whatever may have been possible once, it is impossible nowadays to demand that all of each of these things should be learnt by the student of medicine. Though possibly the power of man to learn is increasing, though each science as it becomes more and more consolidated can be expounded and apprehended with greater ease, though the grasping of one science is in itself a help to the grasp of other sciences, yet beyond doubt that which has to be learnt is enlarging far more rapidly than is man's ability to learn."[3]

To extend the course of instruction in the medical schools of this country beyond the present four-year limit does not, under the prevailing conditions of education in America, seem desirable, and the curriculum of most of our schools is already so crowded that no considerable amount of instruction can possibly be added. In what way then can we give to our medical students an adequate amount of information on all subjects embraced in the constantly widening domain of medical science and art? In other words, how shall instruction keep pace with knowledge?

[2] Medical Education: Collected Essays, vol. iii. D. Appleton & Co. 1894.

[3] An Address to the Students of Mason University College, Birmingham, October 3, 1898.

In seeking an answer to this question it may be assumed that a medical school of the first rank should be an institution in which the most advanced instruction in all departments of medicine can be obtained, and on this assumption it is, of course, impossible to arrange a course of study that every student *must* follow in all its details, for in the time which may properly be devoted to a course of professional study it is quite impossible for even the most intelligent students to assimilate all the varied information which such a school may reasonably be expected to impart.

It seems, therefore, to be evident that in arranging a course of medical study a distinction must be made between those subjects which it is *essential* that *every* student should know and those subjects which it is *desirable* that *certain* students should know, that is, between those things of which no man who calls himself a physician can afford to be ignorant and those which are important for certain physicians but not for all; in other words, provision must be made both for required and for *elective* studies.

The introduction of the elective system into a professional school is not an altogether novel proposition. For several years a large part of the instruction in the fourth year of the Harvard Medical School has been given in elective courses in various specialties, such as ophthalmology, otology, etc. The extension of the elective system to the earlier years of the course would be attended by no difficulty as far as details of administration are concerned and has indeed been advocated by President Eliot in a speech at the dinner of the Harvard Medical Alumni Association in 1895. But the question may perhaps be asked, whether it will be possible under such a system to secure the proper training of young men for the duties of a profession in which experience of life contributes so largely to success, and in which, therefore, a student at the beginning of his career may be supposed to be peculiarly in need of the guidance of his teachers.

It is true that in the academic department of Harvard University the capacity of the average student to choose his courses wisely and well has been demonstrated by the experience of many years, but it may be properly urged that the success of the system in the academic department does not necessarily justify its extension to a professional school. The responsibility of the medical faculty in granting the degree of M.D. is very different from that of the academic faculty in giving the A.B. diploma, since an imperfectly qualified practitioner of medicine may endanger the lives of his patients, while an unworthy graduate of the academic department can, as a rule, injure no one but himself. Hence the medical faculty may justly be required to exercise greater caution in bestowing the degree of M.D. than is necessary in the case of the A.B. diploma. We must, therefore, inquire whether it is possible to obtain the advantages of a flexible curriculum consisting largely of elective courses without losing the security against superficial and imperfect work which the present compulsory system is supposed to afford.

Any one who is familiar with the existing methods of medical instruction is aware that in nearly every department many things are taught which are subsequently found to be of use to only a fraction of those receiving the instruction. Thus the surgical anatomy of hernia is taught to men who will subsequently devote themselves to dermatology, future obstetricians are required to master the details of physiological optics and the microscopical anatomy of tumors forms a part of the instruction of men destined to a career as alienists. Now no one can question the propriety of including instruction on all these subjects in the curriculum of a medical school, but it may be fairly questioned whether *every* student should be forced to take instruction in them *all*. It may perhaps be urged that no choice of studies can be made without determining to some extent the direction in which the work of a future practitioner is to be specialized, and that such specialization cannot be properly and safely permitted until the student has completed his medical studies. To this it may be answered that, whatever may be the dangers of too early specialization, the dangers of crowding the medical course with instruction of which many students do not feel the need, and of thus encouraging perfunctory and superficial work, are certainly no less serious. Moreover, it will doubtless be found perfectly possible to establish such a relation between the required and the elective courses that the requirements in each department will be in no way lowered, while a certain freedom of choice is permitted with regard to the direction in which the work is pursued. To illustrate this point allow me to describe a possible arrangement of a course of study in the department of physiology, with which I am of course more familiar than with any other.

In the Harvard Medical School instruction in physiology is now given in a course of about one hundred lectures, besides recitations, conferences and practical laboratory work. Were the work to be rearranged in accordance with the above plan it would probably be found possible to condense into a course of about fifty or sixty lectures all the most important facts of physiology with which every educated physician must necessarily be familiar. Attendance upon these lectures, combined with a suitable course of text-book instruction, would suffice to guard against gross ignorance of physiological principles. In addition to this required work, short courses of eight or ten lectures should be provided, giving advanced instruction in such subjects as the physiology of the special senses, cerebral localization, nerve-muscle physiology, the internal secretion of glands, the physiology of the heart, circulation and respiration, the digestive secretions, the reproductive organs, etc. These courses should be elective in the sense that no student should be required to take them all. Each student might, however, very properly be required to choose a certain number of courses, which, when once chosen, become, for the student choosing them, required courses leading to examinations. The number of special courses which each student should be thus required to elect should be sufficiently great to render the total amount of physiological instruction in no way inferior to that which is given under the present system.

It would doubtless be found desirable in practice not to confine the possibility of taking elective courses to the year in which the required instruction is given, for a student may frequently in the latter part of his course become interested in a subject like mental diseases, for instance, and will then be glad of an opportunity to take special instruction on the physiology of cerebral localisation. The elective courses should, therefore, be so arranged that they may be taken in any part of the medical curriculum.

There is, in my opinion, no doubt that an arrangement of instruction similar to that here suggested for

physiology could be advantageously adopted in the departments of anatomy, histology, bacteriology, medical chemistry, pathology, surgery and in the courses of instruction in the various special diseases, such as dermatology, opthalmology, etc. Whether the instruction in clinical medicine and clinical surgery can be thus modified is a question about which more doubt may be entertained, and which I prefer to leave to persons of greater experience than myself in methods of clinical instruction.

Under the existing conditions of medical education the introduction of the elective system in some form or other seems to be an essential condition to any further important advance. If it be said that under this system the medical degree will cease to have the definite meaning now attached to it and that it will be impossible to tell from his diploma in what way a physician has been educated, it may be replied that, though the degrees of A.B., A.M., Ph.D. and S.D. are affected with exactly this same uncertainty of signification, their value seems in no way diminished thereby. As long as the M.D. degree stands for a definite amount of serious work on medical subjects directed on the lines above indicated we may be reasonably sure that those who hold it will be safe custodians of the health of the community in which they practise.

If it be urged that the elective system in medical education will lead to the production of a class of physicians who, owing to the early specialization of their work, will be inclined to overrate the importance of their specialty and to see in every disease an opportunity for the display of their special skill, it may be pointed out that this result is apt to be due not so much to early as to imperfect instruction in the work of a specialist, and that since the elective system tends to encourage thoroughness in special instruction, the evil may be expected to diminish rather than to increase.

I have spoken of the extension of laboratory instruction as an important forward step in the improvement of educational methods in medicine during the last quarter of a century and I desire to bring my remarks to a close with a few words on the relation between laboratory and didactic methods in medicine and on the employment of both methods in a system of instruction including both required and elective courses.

There is perhaps no field of human activity in which the pendulum of reform makes wider excursions than in that of education. Whenever any given method is found to give unsatisfactory results there is a strong tendency to abandon it altogether in favor of some entirely different method. Thus the obvious defects of the oral system of examination employed in the Harvard Medical School thirty years ago led to its complete abandonment and to the adoption of the written examination book, though there is little doubt that a system combining the advantages of both the oral and the written methods could easily have been devised. In the same way the fact that many subjects have been, and indeed still are, taught in systematic didactic lectures which can be better taught by laboratory methods tends to obscure the equally important fact that there are many other subjects in the presentation of which the living personality of the lecturer is a very important factor, and which indeed can be properly presented to students only by those who have had much experience in weighing scientific evidence. In this connection it is interesting to recall the wise words of Huxley, who expressed himself on this subject as follows:

"What the student wants in a professor is a man who shall stand between him and the infinite diversity and variety of human knowledge, and who shall gather all that together, and extract from it that which is capable of being assimilated by the mind."[4]

To what extent the laboratory can replace the lecture-room will of course depend upon the nature of the subject taught. In such a branch as anatomy, where facts learned by observation form the greater part of the knowledge to be imparted, laboratory work can be substituted for didactic instruction to a greater extent than is possible in subjects like physiology and pathology, where inferences from observations and conflicting views must frequently be presented. In no department of medicine, however, will it probably be found possible to dispense entirely with a systematic course of lectures in which a trained instructor may give to his class the benefit of his accumulated experience.

A consideration of the nature of the subject taught will also furnish a guide for the employment of laboratory and didactic methods in the required and elective courses above suggested. In general the required courses, being comparatively elementary and concerned chiefly with the presentation of well-ascertained facts, may be made demonstrative in their character and may be conducted in accordance with laboratory methods, though a short course of didactic lectures, parallel with laboratory work, will in most cases be found to be essential. In the elective courses which provide advanced instruction in many directions, the limits of our knowledge will be more nearly reached. It will therefore be necessary to present and weigh the evidence for and against the various conflicting views which are almost certain to be held with regard to subjects lying within what Foster has called the "penumbra" of solid scientific acquisition. For this purpose the most suitable method of instruction seems to be a short course of carefully prepared didactic lectures which should, however, be varied by demonstrations whenever the nature of the subject will allow.

It is, however, unnecessary to discuss these and other details at the present time. They will speedily arrange themselves as soon as the necessity for a comprehensive reform in our methods of medical instruction is generally recognized and it is in the hope of helping to secure this recognition that I have addressed these remarks to you this evening. In whatever way the remedy is to come it should not be long delayed, for the difficulty of giving adequate instruction to constantly increasing classes seeking information over a constantly widening field of knowledge is felt each year with greater and greater keenness.

THE CHARITIES OF BARON IVEAGH. — It is reported that Baron Iveagh, formerly head of a brewing firm in Dublin, has presented $1,250,000 to the Jenner Institute of Preventive Medicine, for the promotion of scientific research. It is also stated that Baron Iveagh proposes to cleanse an unsanitary district in Dublin and give it to the corporation for street improvements at a cost of about $1,250,000.

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[4] Medical Education: Collected Essays, vol. iii. D. Appleton & Co. 1894.

Original Articles.

THE TEACHING OF PHYSIOLOGY IN MEDICAL SCHOOLS.[1]

BY W. T. PORTER, M.D.,
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In the Harvard Medical School, which may be taken as a fair example of the better schools of medicine, physiology occupies one-fourth of the student's time during one collegiate year of thirty-two weeks. Stated instruction is given during two hundred and twenty hours, and the time spent in home study can hardly be less than five hours a week, or one hundred and sixty hours in the year, making a total of three hundred and eighty-one hours, or one-quarter of the total number of working hours in the collegiate year, on the basis of eight hours' hard work per day. The instruction consists of lectures (one hundred and eight hours) illustrated by diagrams, lantern-slides, models, specimens, and occasional demonstrations; of laboratory work (sixty-four hours, equal to fifteen per cent. of the stated instruction, and to eight per cent. of the total time given by the student); of recitations from text-book or lecture notes (thirty-two hours, equal to fifteen per cent. of the stated instruction), and of thesis writing, in which thirty-two men in a class of over two hundred present essays put together by them from reading a moderate number of the researches upon the theme assigned. These essays are read before the class, and the reader may be questioned by any student present; the "discussion" is closed by remarks from the instructors. The instruction described begins with the entrance of the student into the school, and is terminated by a written examination of two hours, and an oral examination of six minutes' length.

The physiological lectures in medical schools are commonly given by one man over the whole immense field of physiology. This field is much too large to permit of even superficial personal acquaintance by one man. The instructor must therefore necessarily take the chief part of his lecture from a text-book. To this he adds citations of a few experiments or observations taken at random from the original sources. He has not and can not have real knowledge as to the present state of special opinion on the majority of the chapters in his subject, first, because none but a specialist can cope with the constantly rising flood of meritorious research in any one field, — to keep pace with the whole of a science which stretches ample arms over the larger part of human and comparative biology is impossible. A natural science cannot be thoroughly well taught except by those who have themselves made experimental investigations in the special field which they would teach. No one in these days can work profitably in many fields and no one man should attempt to teach them all. A man trained, for example, in the physiology of digestion is likely to have but a relatively feeble grasp on the physiology of the circulation, the nervous system, or the special senses. It follows that most of the instruction in the one-man system does not adequately represent the present state of knowledge. It is behind the times in all except the special field cultivated by the instructor himself. So far as possible, the instruction in each field should be given by the man actively at work therein, but this wise principle of the division of labor is not usually regarded.

Printed notes of the lectures are prepared by the students and sold to the class, and many students take their own notes. Occasionally these are good; such are usually taken by students who could learn without the lectures, but commonly the notes are wretched performances and wellnigh useless. They are far inferior to even a moderately good text-book. Students, as a rule, do not seriously study their notes until just before the examination. Many men are persuaded that the lecturer "follows Foster" or some other text-book and excuse their idleness in the lecture hour by resolves of industrious reading of the omniscient Foster at some future time.

The lectures last a full hour and are frequently held in a badly lighted, badly ventilated, and overcrowded room. Other lectures are sometimes given in this room the hour before, or the student goes from the vitiated air of one lecture directly to another. Students are not given chairs, but are squeezed onto hard, uncomfortable benches. They have no place on which to lay their note-books, and no opportunity is afforded to write notes after the hour, while the lecture is fresh in the mind.

As a rule, in medical schools many of the lectures in physiology are given before the student has any acquaintance whatever with the anatomy of the structures considered, and, still more are heard before the student has any real anatomical knowledge, — that based on actual contact with tissues and not upon a glimpse of a distant prosection or a hasty glance at a diagram. Lectures on the functions of the brain and the spinal cord are often delivered to students who never have so much as seen the brain or cord. Pictures in a text-book supply the place of real knowledge. Much of the student's learning is mock physiology, based on mock anatomy. His ignorance of the structures and real appearance of the parts he studies is exceeded by his ignorance of their chemistry.

Passing now to the demonstrations, we find that in the larger schools they are made before an audience of at least two hundred. Thus the greater number cannot see the demonstration clearly. Indeed, the procedure is usually more or less illusive. Take for example the celebrated demonstration of the mammalian heart in the anesthetized living dog. The student sees at a considerable distance a small object in confused rapid motion; he hears the rattle of an induction machine; the lecturer cries "On!" and the heart stops; "Off!" and the confused motion recommences. The student is supposed to have seen how the heart beats and to have studied the inhibitory action of the vagus nerve. I cite this demonstration because it is one of the best; of many, still less can be perceived, and many, also, do not show more than a method of taking a graphic record. If the class is divided into small sections the glimpse allowed each man does not suffice for a real grasp of the details. Very commonly the demonstrations requiring much time are given in a course separate from the lectures. In short, most of the demonstrations as now given are an aid to the memory rather than a means of training in science. The position awarded them by the usual lecturer and by almost every student is one of the evidences of the fundamental pedagogical error which renders most medical teaching of anatomy and physiology so largely

[1] Presented in part at the meeting of the Society of American Naturalists, December 29, 1898.

futile, namely, the deplorable notion that demonstrations are merely illustrative and the book and the lecture the main force. Never was the pedagogical cart more squarely before the horse. Contact with nature is the essential of all training in biology.

The laboratory work in large schools is given in relatively small sections, and is not co-ordinated with the regular lecture course. The student feels that the experiments are purely secondary. The experiments are imperfectly arranged into groups. They merely illustrate the text-book. In no case do they present a full picture of any field. The time allowed is so short that criticism of results and insistence upon the proper standard of excellence is not attempted.

The writing of theses is useful to the few who write, and in a certain degree stimulating to those who hear. But it cannot be denied that the ordinary thesis sows more error in fifteen minutes than can be dug up in several hours. Theses are not seen by the instructors before they are heard by the class.

The instruction is the same to every student without regard to what his *life* is to be. Much time is given to matters which have a very remote connection with the future of most students, and which are not better material for training the mind than matter bearing directly on the student's future work. This destroys the interest of many — and an uninterested man cannot be taught.

The results of the present method are to be judged in part by the examination. The Harvard examination is easy, contrasted with the standard of non-professional schools, and measured by that standard the scale of marking is extraordinarily indulgent. Nevertheless the majority of the class fails to reach 65 per cent. The examination for the most part does not deal with real knowledge, but may be passed successfully by the mere reading of a book, and, in fact, the actual preparation for it is almost entirely the memorizing of the text-book or the lecture notes. Students are often questioned about the heart-sounds. Most of them have never listened to the heart. The common reply is the quotation of an unfortunate and misleading sentence in the text-book: "The heart-sounds are like the syllables 'lub dupp.'" They are questioned about the motor area of the cortex of the brain. Few of them have ever dissected a brain. Were the class examined as to their real knowledge of things in nature, and not their recollection of a description in a book, a lecture, or a schematic diagram, it is my deliberate judgment, based on the examination of more than one thousand students, that 90 per cent. would fail to pass. Those who passed would be clever men who owe little thanks to their stated instruction. The leaders in medicine educate themselves in spite of the regular routine.

The results of the present method are further to be judged by the opinion of well-balanced successful men as to the value of the training in the practice of medicine. It is a significant fact that the regard of such men for the physiology taught in the schools is diminishing, whereas it follows logically from the construction of medical science that it should steadily increase, for physiology is the rock upon which rational medicine is built. In truth, scarcely one student in ten gets a sound knowledge of the elements of physiology. By far the greater number enter the physiological course persuaded that natural science can be acquired from books, and leave convinced that a deal of talk and a pennyworth of nature will give one real knowledge of the action of living tissues.

It is important to inquire how this extraordinary system was developed. The reply is that the present method is a survival of mediæval methods; the student of tradition finds a rich field in the history of medical teaching. The teaching of physiology has split off from anatomy; men now living have taught both subjects in the same course of lectures. Descriptive anatomy became the most conspicuous discipline in medicine at a time when the best mental training could be had only from books, from lectures, from abstractions. It was the flowering time of metaphysics, of authority, of the deductive method. The true principle of approaching nature discovered by the Greeks survived only in a few men of genius — a spark that in our time has been fanned into flame. Joined to the powerful example of the most liberal education of that period was the difficulty of obtaining material for dissection. Stark necessity united with specious theory to fasten upon this most concrete of sciences the methods of the schoolmen, and to this day the bulk of the instruction in anatomy remains didactic and consists of books, diagrams and more or less misleading models. Most men, when asked to describe a bone, visualize — not the bone, but the picture of the bone in "Gray's Anatomy." Dissections are made to illustrate the book. The printed description is learned by rote and the dissection practised too often simply as a manual exercise. The anatomy of the medical college is largely a memory drill — such as belongs pedagogically in the secondary schools. These seventeenth-century notions have been passed on from anatomy to physiology.

Practical work in physiology has also been kept back by the erroneous ideas that the cost of apparatus and other materials is prohibitory, that medical students cannot master the details of exact experimentation, that delicate apparatus cannot be trusted in their hands, and that instruction to the extent required cannot be given to classes of two hundred or more because the course will become too complicated to be carried out.

The chief obstacle which has kept physiology in an ancient and now almost abandoned path is of a different sort; the cost of the new way is within our present means; the experiments done already show that students will do all that may be required of them; and classes of two hundred or more can be carried through extended laboratory courses with perfect administrative ease — in the past two years students of physiology in the Harvard Medical School have done nearly twenty thousand experiments.[1] The source of the lethargy lies deeper. It lies in the public belief that because anatomy was once taught chiefly from books, it should still be so taught; that the functions of living organs can be learned from books with the occasional exhibition of dead organs; that chemistry should continue to be studied in secondary schools without laboratory work, — in brief, that nature can be studied apart from nature. The public has a just contempt for men who profess to have learned disease without practical observation of the sick, — experience is conceded to be necessary here, — but the public is ready to applaud and even to compel by law the study of the same organs in their normal state by reading or

[1] Many of these experiments require the use of living tissues; such were performed on frogs only; either the brain was destroyed before the experiment, or the animal anæsthetised with ether.

hearing a description at second hand of what some third person saw. Students come from the secondary schools filled with these errors. They ask, "Why should I bother with this laborious practical work when I can get it up from the text-book in the month before examination?" The real drags upon progress are the failure of the secondary schools to teach science by scientific methods, and the fatal conservatism that binds teachers of medicine to a past that we should do well to forget. These venerable delusions no longer impede experts in pedagogy, but unfortunately medical teachers — and this is the last and most important reason for the persistence of the present state of medical teaching — for the most part know little of pedagogy and make no effort to comprehend the sad irony of the phrase "Hours devoted to instruction." The devoted hours do not always instruct. Medical teachers fail to see that medical treatment is "for power" and only secondarily for information. The power of dealing with nature can no more be learned from books, lectures, and a few more or less effective demonstrations than foot-ball can be learned by reading about the game and occasionally sitting on the fence a hundred feet from the eleven at practice.

If it be replied to these strictures that a system which produces so many able physicians and good citizens cannot be much in need of improvement, I answer that the men of talent veil the defects of the mass. They owe much to themselves; genius will thrive on the intellectual diet that stunts the merely industrious man. The average student does not build upon a sound foundation. He knows little anatomy, less physiology, and still less chemistry, and even his training in practical medicine has to be supplemented where possible by post-graduate work in a hospital. On the whole it may be said that his industry has been largely misdirected. The figure he makes in the world would be much worse than it now is were it not that the errors of the first half of the medical course are somewhat atoned by the latter half, which is devoted to practical medicine. The student of practical medicine is nowadays frequently in contact with patients. This part of his education, except for a few brilliant pretences, such as the operations done in the "surgical theatre" before large classes, rests upon a much sounder basis than his instruction in physiology and anatomy. Further, the instructors in the great medical schools are for the most part men of learning, force of character, and devotion to public ends; contact with such men gives the student a high standard of achievement. Yet, important as these influences undoubtedly are, they by no means compensate for the lack of thorough grounding in the basal sciences.

The picture I have drawn of the instruction in physiology in medical schools will not be challenged by teachers of that science. The sense that our methods of instruction neither develope nor much inform the mind is general. It is time that discussion of the difficulties and the way to remedy them should also be general. Physiology is the most highly developed rational discipline in medicine,— not a merely descriptive science like anatomy,— and is well adapted to train the mind in scientific procedure, in the setting of problems for research, in the criticism of methods and results, and in the tests which lay bare shallowness,— matters of great moment to men who shall practise an applied experimental science in the midst of quackery, illusion and pretence. Careful inquiry should therefore be made to determine how far the defects of instruction can be remedied with the means at our disposal. The problem is, How far can the correct theory be realized in practice? To what extent can medical students of physiology be taught in the manner in which men are trained to be professional physiologists? Evidently physiologists are likely to study their own subject in the most profitable and labor-saving way.

Much can be done to reconcile theory to practice, but not everything. The size of physiology has broken it into specialties. Even professional physiologists can no longer have personal acquaintance with the whole subject or even a relatively large part of it. The truth of this will be obvious when it is remembered that since January 1, 1894, more than three hundred researches have been published on the physiology of the heart alone. To a considerable degree the physiologist himself must acquire his information from reading the work of others. It would therefore be idle to expect the student of medicine to get a personal experimental knowledge of the whole subject. He has but a year for physiology and must share that time with anatomy. Grave economic laws demand this time shall not be lengthened, and the day of self-support postponed. The time which he now has must be used chiefly for training and not chiefly for the acquisition of facts, as at present, and this training must follow the lines laid down by physiologists for their own development.

The way of the physiologist is not peculiar. The method of getting a real education is the same from the kindergarten to the specialist. The principle is to train "for power," to use President Eliot's phrase, and not primarily for information. Deal so far as possible with the phenomena themselves and not with descriptions of them. Use as the basis of professional instruction the facts and methods which shall be used by the student in earning his living. Teach the elements by practical work. Associate facts which the student can observe for himself with the facts which he cannot observe. Control the progress of the student, remove his difficulties, and stimulate him to collateral reading by personal intercourse in the laboratory, by occasional glimpses of the researches in progress in the laboratory, and by daily conferences or seminaries. Give the student careful descriptions of the method of performing his experiments, but require him to set down the results for himself in a laboratory notebook, which, together with the graphic records of his experiment, is to form a requirement for the Doctorate. Choose one sufficiently limited field in which the experimental work shall be thorough and comprehensive, affording a strong grasp of that special subject. Add to this the typical, fundamental experiments in other fields.

When the student has come thus far, let him choose one of several electives affording advanced training in the physiology of the medical specialities, such as opthalmology, laryngology, the digestive tract, the nervous system, etc. These courses should be thorough, should contain the physiology required of the best specialists, and above all should deal with nature directly. For example, in studying the physiology of the stomach, the gastric juice should be taken with the

stomach-tube directly from the human subject, and not obtained by adding hydrochloric acid to scrapings of the mucous membrane of swine. This special instruction should be directed by distinguished specialists. Thus the student will be brought into contact with that which will interest him most, the everyday methods of the best physicians, and the specialist will keep his own foundations in repair. It is in connection with these courses that didactic lectures should be given. Up to this point in his work, the student is not ripe. Let there be one to four lectures of not more than forty-five minutes, the subject very limited, so that each set shall present all the existing knowledge on the subject. The purpose of these lectures is to show the student the historical development of scientific problems, the nature of scientific evidence, and the canons of criticism that shall help him to sift the wheat from the chaff of controversy. Lectures of this kind cannot profitably be given by men who have not made experimental investigations in the subject of the lecture; so far as practicable they should be given by the specialists who advise the physiological staff concerning the special courses.

Each student should be required to present one written discussion of some very small and sufficiently isolated thesis, giving the work of the original investigators, together with any observations the student has made for himself. The way of dealing with the sources at first hand will thus be learned.

The student's reading should be correlated strictly with his practical work and should be done in the laboratory in connection with that work. It should not be memorizing, as at present, but the study of graphic records, physiological-anatomical preparations, and other physiological material, with the aid of the text-book. The corrections necessary to bring the book up to date and to correlate it with the practical work can be furnished in printed or mimeographed notes.

Such are the lines along which sound theory directs that the teaching of physiology in medical schools should proceed. With such a training the student can safely find his way through the constantly augmenting horde of facts and draw vicarious profit from those who are face to face with the mysteries of nature. Such instruction meets also the needs of men intending to make a profession of biological sciences other than medicine. It will be observed that the course offers (1) thorough experimental acquaintance with one field, say the physiology of nerve and muscle, giving the point of view, the general physiological method, training in technique, a basis of analogy, adequate knowledge of one living tissue and thus the elements of all; (2) the fundamental elementary experiments in the remaining fields; with the key which the first course gives, these will unlock much; (3) thorough experimental acquaintance with one special subject; (4) various complementary gains, of which may be mentioned experience in reaching the original sources and in marshalling facts, a certain degree of skill in the methods used by practitioners, direct correlation between physiology and practical medicine. Much might be said of the value of this group, particularly of the correlation just mentioned, but we must hasten on to the demonstration of how these ends are to be attained practically.

The first problem to be solved in planning instruction is whether the student's time is to be given wholly or only in part to the subject taught. Men in training for professional physiology commonly concentrate their energies for a sufficient period on this one subject; and this is regarded as the most economical way of mastering any science, for the ground gained by one day's work is still fresh in the mind when the next day's work begins, and continuity of thought is not disturbed. The plea that the instruction in one subject should be broken by the injection of other subjects in order that the instruction in each may have "time to sink in" need not be entertained; experience shows that much of it sinks in so far that it cannot be got up again without the loss of valuable energy. A more serious objection is that the method of continuous application is highly fruitful in the case of men of exceptional powers, who are keen in spite of protracted effort, but is wasteful for the average brain, which is fatigued and unreceptive after some hours of unremitting labor. The truth of this must be allowed, but the objection does not apply to wide-ranging sciences such as anatomy and physiology, which are not narrow, hedged-in areas, but which consist rather of broad and diversified domains composed of many contiguous fields, the varied nature of which is a perpetual refreshment. In practice the student of anatomy may divide his time between general anatomy, descriptive human anatomy, surgical anatomy, histology and embryology, all of which are now taught in the medical curriculum, and the student of physiology may pass from general and special physiology to physiological chemistry, thus resting the mind without interrupting the continuity of effort essential to instruction that must be both rich and frugal.

I would propose, then, that the first year in medical schools be divided equally between anatomy and physiology, the first four months being given to general anatomy, descriptive human anatomy, histology and embryology; the second four to physiology and physiological chemistry, studies which cannot be pursued without a knowledge of anatomy.

In accordance with the principles already outlined, the instruction in physiology should be divided into three parts. Part I, of five weeks' duration, should consist of a thorough drill in the physiology of nerve and muscle, the hours from 9 to 11 being devoted to experiments, the hour from 11 to 12 to study of materia physiologica (physiological preparations, graphic records, etc.), and the time from 12 to 12.45 to a conference or seminary, which should be part lecture, part recitation. In the conference the bearing of the experimental work just done should be developed by systematic progressive questioning accompanied by running comments, to clear up any possible fog. A brief account of other experiments which add to the truth established by those which the student has done for himself, but which are too complex or too protracted to lie within the student's powers, should be brought in here.

Part II, of seven weeks' duration, should comprise carefully-arranged fundamental experiments giving in turn the elements of each field in physiology except that of nerve and muscle, which has just been studied. As before, the whole class works from 9 to 11 upon experiments, from 11 to 12 studies all possible means of illustrating the subject of the day, and from 12 to 12.45 attends the conference or seminary. In the forty-two days covering this part of the course instructors who find the mixture of lecture and Socratic

method unsympathetic may abandon their questioning and fill the time with their own remarks; even such instruction would be far more fruitful than the present lectures, for the students would have had experience in anatomy and would be well grounded in experimental physiology, through his work on nerve and muscle, before the talk began; but the seminary is much more effective than the lecture.

In Part III, covering the remaining four weeks of the term, the instruction is divided into special courses on the physiology of the eye, ear, larynx, digestion, the spinal cord, the innervation of the heart, etc. Each course should consist of experimental work from 9 to 11, the study of preparations and other aids from 11 to 12, and a conference from 12 to 12.45. Each course should be long enough to include all the practicable experiments that should find a place in a systematic, thorough study of the subject. The number of such experiments, and hence the length of the special courses, will naturally be very different in the various instances; thus experimental physiology of the eye will occupy more time than the physiology of the larynx. As many courses should be given at one time as there are instructors in the department. The student may elect the subjects that most interest him, but must choose a sufficient number to occupy him during the entire four weeks of instruction.

The afternoons of the days on which physiology is taught are devoted to physiological chemistry.

After this brief yet comprehensive glance at the scheme of instruction, let us consider the question of ways and means. Let us suppose that the number of students in physiology is two hundred. Experience at Harvard shows that it is of advantage to have the men work in pairs; indeed, many of the experiments in physiology cannot be done by one man alone, because the necessary manipulations require an additional pair of hands. Thus one hundred sets of each apparatus must be provided for Parts I and II of the above course, in which the students all do the same work at the same time. In the elective subjects the number of sets is much less, first, because the number of students in any one subject is relatively small, and, secondly, because the character of the work permits a method of rotation to be applied. Expensive apparatus, as the ophthalmoscope or the perimeter, can be provided in sets of four, and the section divided in such a way that while four pairs of men work with the opthalmoscopes four others can work with the perimeter, and so on. Much of the apparatus for the special courses is that in use by physicians in everyday practice, and may be obtained in small quantities from the manufacturers for little or nothing, as the advertisement of their product by its selection to serve as a model in the university is a valuable consideration. The cost of the remaining apparatus for two hundred students should be fully covered by fifty dollars[1] for each pair of students, or five thousand dollars for two hundred students. Much of this apparatus is permanent, some will last for twenty years or more without renewal, and some is likely to require frequent renewal. If it be assumed that the entire plant must be replaced every ten years, surely a liberal estimate, the entire cost of apparatus, including simple interest at four per cent. on the original investment of five thousand dollars, would be met by setting aside three dollars a year from the fees of each student — surely a sum within the reach of any large medical school. It is assumed that one piece of each kind of apparatus shall be made by the laboratory mechanic, and bids for a hundred duplicates taken in the open market.

The floor-space required for two hundred students working at the same time is three thousand square feet. It would be of advantage to have this space divided into five adjoining rooms, each accommodating twenty pairs of students under a separate instructor, who shall supervise the work and conduct the conference, rotating in these duties with the professors and other instructors, so that all students shall have in turn the special advantages attaching to the personality of each instructor. The desks and other necessary fittings are simple, and are certainly not more expensive than those now placed in chemical laboratories.

The number of instructors for one hundred pairs of men in a thoroughly systematic course need not be more than five. Experience shows that students prefer to work for themselves largely; they rely upon the printed directions, and need only an occasional hint from the instructors. The ranks of the corps of instruction can be filled by young physiologists. This method was introduced in the Harvard Medical School two years ago, at the suggestion of the present writer, and bids fair to be as successful there as it has proved in other institutions. In return for the time given to instruction, these men receive first of all the privilege of instructing. Well-conducted laboratory classes afford extensive practice in teaching, and at the same time the great number of experiments inevitably and almost insensibly imparts a varied knowledge of the fundamental phenomena of the science; further, these instructors are provided free of cost with the means of research; and at least half their time may be given to investigation; finally, even the instructors of the lowest grade receive a sum of money, which, if not sufficient to keep the wolf from the door, is at least enough for a bare subsistence during the collegiate year. That able specialists would be willing to advise, and even to direct, the special courses in practical subjects does not admit of doubt; they would save time thereby, for these same specialists are obliged to instruct these same students in ophthalmology, laryngology, and the like, in the third or fourth year of medical study, and, as might be expected, the students have long before that time forgotten the facts which they memorized from the text-book shortly before the examination in physiology, and must therefore reconstruct, at the expense of the specialist, the foundation of sand upon which his teaching is to rest. Besides the teaching staff, the whole time of a laboratory man-servant and a scrub-woman, and a part of the time of a competent mechanic will be required.

Instructors saturated with the *ancien régime*, on reading these proposals will exclaim, "Why! you have made the lectures merely explanatory of the experiments." Precisely, that is the chief excellence of this plan of instruction. They will say, too, that some chapters of physiology are based on experiments too difficult and time-consuming for student instruction and which, therefore, will not fall within the plan; of this sort is the complicated balance which is struck between the income and the outgo of the body for the purpose of studying the fate of the starches, fats, and other

[1] These estimates are based on sums actually paid for the apparatus now in use by students in the Laboratory of Physiology in the Harvard Medical School.

constituents of the food. The reply is that in these instances the methods pursued by the original investigator, his results, and his conclusions are to be placed before the student during the hours provided for the study of physiological material, and then made the subject of a conference, where the view formed by the student from the study of the original source can be corrected, if necessary, by the view which the professor has himself formed exactly in the same way; the meat on which professors are nourished is just the diet for students — it only need be put where they can get it. But subjects of the nature just discussed develop little "power" and should be allowed no more time than is sufficient to give the point of view, the method, the more fundamental results, and the places where additional information may be found. Finally, we cannot expect to escape the phrase watering-pot, as Bismarck called it. We shall have urged against us certain sanctified expressions, such as the accumulated experience of centuries. Let us answer that the system by which we now teach anatomy and physiology began as a makeshift and has become a dogma. It is sanctified by some centuries of repetition, not of experience, for systematic experiments in medical pedagogy have rarely been made; the oracles have been severe with those who meddled with the tripod.

The force now making for reform is irresistible. It is nothing less than the conviction that the mass of knowledge in every department of medicine is grown so huge as to overwhelm both professor and student. The only refuge lies in a thorough mastery of the scientific method. The medical student must acquire power rather than information. Only thus will he be able to hold a steady course through the baffling winds and cross currents of a veritable sea of knowledge.

HYSTERICAL NEURASTHENIA.[1]

BY MORTON PRINCE, M.D.,

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THE text of my paper will be found in a question of a certain examination paper given to the students of the Harvard Medical School last June (1897) by a distinguished professor of the School. Question: "Differentiate between neurasthenia and hysteria."

This question by chance attracted my attention, and I wondered whether the distinguished professor felt quite certain he could give reliable rules for differentiating the two neuroses, for the matter of it is one which has for a long time been the object of my study, and given me much difficulty in finding a satisfactory answer. I have been for some time of the conviction that much that passes for neurasthenia is not neurasthenia at all, but allied neuroses, and a very large part is really hysteria. The principal difficulty encountered in the study of these neuroses is in establishing any absolute criterion of what is hysteria and what neurasthenia. It is not always possible to draw a sharp line of distinction between these two affections, for while hysteria is not neurasthenia, I am convinced that clinical neurasthenia may be pure hysteria and not a mere complication.

The general notion amongst neurologists is, I think, that hysteria always means stigmata, and consequently "no hysteria without stigmata," and conversely, "no stigmata without hysteria."[2]

But it is well to bear in mind, that, though we continually refer to the stigmata of hysteria, there is no settled agreement as to what shall or shall not be regarded as stigmata. Any objective sign, or all the manifestations, subjective and objective, of hysteria might be called stigmata, and under such an interpretation, of course the presence of any symptom would be equivalent to hysteria; but ordinarily by stigmata reference is made to the more pronounced objective signs and psychical phenomena; but there is, again, absolute agreement as to which of these shall be called hysterical stigmata. About some there is, of course, no question: paralysis, anesthesia, hystero-epileptic attacks, concentric limitation of the field of vision, marked ataxia, tremor and chorea are always accounted as stigmata, and reference is usually made to one or more of these physical signs with some others; but when we have to do with minor objective signs, like slight muscular weakness, mild tremor, visceral and vasomotor disturbances, it is not always clear whether they are to be included as stigmata or not, inasmuch as they may be also indicative of other conditions, and especially of pure neurasthenia; nevertheless, they are also phenomena of hysteria. I have not been able to find any statements by writers on the subject as to precisely what manifestations are to be regarded as stigmatic.

A neurasthenic condition, as a complication of hysteria with stigmata is well recognized, and perhaps occurs in the great majority of cases, when it is commonly spoken of as hystero-neurasthenia, but hysterical neurasthenia, as a distinct form of hysteria, is not mentioned by any of the principal modern works that I have consulted. In saying this the sense in which I use hysterical neurasthenia is this: we have hysterical paralysis and anesthesia, simulating organic paralysis and anesthesia; chorea, ataxia, asthma, etc., mimicking the corresponding diseases, but hysterical neurasthenia, simulating and mimicking true neurasthenia, curiously enough, does not seem to have been distinctly recognized as a clinical entity, although everything that we know about hysteria would suggest that such a condition must exist and should be common. Pitres, in his exhaustive work on hysteria, emphatically lays down the principle that hystero-neurasthenia is a combination of two distinct and separate diseases, and although a description of a very large number of diseases mimicked by hysteria is given by him, neurasthenia does not find a place. The same is true of that of Gilles de la Tourette; and Charcot also only speaks of hystero-neurasthenia, in which the presence of stigmata like anesthesia and paralysis are distinguishing signs. Preston (whose book is one of the latest on hysteria), and Floyd and Dercum also do not seem to recognize this form of hysteria. Nevertheless, I am inclined to believe that in practice many practitioners tacitly recognize that hysteria may have a neurasthenic type, and very likely a more thorough search of the literature

[1] Read before the Society for Medical Improvement, April 4, 1898.

[2] It is true that a distinction is sometimes made between grand hysteria and little hysteria, but this distinction is an artificial and arbitrary one, and is made more as a matter of convenience than upon scientific differences. There is no precise mode of determining what shall or what shall not be included in grand hysteria. For instance, hystero-epileptic attacks, paralysis and anesthesia would undoubtedly constitute a grand or grave hysteria, but when we come to the minor objective manifestations, like tremor, aphonia, perhaps ataxia and choreiform movements and uncomplicated local spasms, there is nothing upon which we can base a distinction between major and minor hysteria. However, it is unnecessary for our purpose to dwell upon this point here.

than I have given would show its definite recognition. At any rate, I think I am right in saying that this type is not recognized by most text-books, and yet every physician of experience was familiar with hysteria without these obtrusive manifestations which are now called stigmata, before Charcot and his pupils had, by their brilliant studies, given such prominence to the objective manifestations. The tendency at present is to leave too much out of sight those forms of hysteria in which paralysis, anesthesia and similar troubles are not observed.

Now the two theses which I wish to maintain are that *severe (grave) hysteria without stigmata is very common, and, second and in particular, hysterical neurasthenia is one of the commonest varieties of this disease and includes a very large part of the cases that ordinarily go under the name of neurasthenia.* In other words, just as we have hysterical paralysis and hysterical anesthesia, so we have hysterical neurasthenia, simulating and mimicking true neurasthenia. The corollary of this is, that much that goes under the name of neurasthenia is hysteria. The recognition of this is, in my opinion, very important because of the bearing which it has upon prognosis and treatment. Unless recognised, the successful treatment of many so-called cases of neurasthenia is apt to be difficult, if not impossible. The reason for this form of hysteria not having been sharply differentiated as a clinical entity is the difficulty of satisfactorily demonstrating its pathology. This difficulty must be conceded. When objective stigmata like paralysis are present, we have signs, the true nature of which can be readily recognised and distinguished from similar manifestations occurring in other conditions, but the absence of obtrusive objective signs in neurasthenia, and the prominence of subjective symptoms render the distinction difficult. Nevertheless, we have what perhaps might be called circumstantial evidence sufficient for the purpose.

While hysterical neurasthenia may be called a pseudo-neurasthenia, it would be very wrong to view as hysteria all pseudo-neurasthenic cases. As a purely tentative and preliminary classification, I would suggest the following as different types of pseudo-neurasthenia:

(1) Habit neuroses, in which the symptoms mostly represent the persistence of manifestations of previous disease long since subsided.

(2) Neuroses from pure auto-suggestion; this would include certain types of phobo-neuroses.

(3) Intoxications, as from gout, uremia, improper metabolism, etc.

(4) Hysterical neurasthenia.

In order that it may be understood what sort of cases I include as hysterical neurasthenia, I will give a brief synopsis of five cases, taken from a much larger number that might easily be given:

OBSERVATION I. Miss A. W., heredity bad. Present illness of long duration. Symptoms: marked insomnia, headache, pain in the side, backache, early fatigue after physical and mental exertion, also paresthesia of scalp, followed by soreness. Pain in the side and backache are caused by exertion. Riding in the street cars causes pain in the side, which then goes up into the head and is followed by shooting pains. Noises completely unsettle her, make her nervous, and she then cannot fix her attention for reading, writing or sewing. Has crying attacks, especially the result of noise. During examination broke down, crying, etc. Limit of ability to walk: one mile on good days, bad days cannot walk at all. Physical examination: well developed and nourished, no objective signs of any kind.

OBSERVATION II. Miss L. W. D., about thirty years of age. Present illness of some two years' duration. Symptoms: tingling feeling all over body; crawling and stiff feeling around neck, as if she was going into a fit; feeling of pressure and tightness in back of head; night sweats; feeling of exhaustion coming on often suddenly, and often after eating, talking, exertion, and accompanied by sweating of forehead; pain in the back; crying spells; dyspepsia. Not much physical fatigue; can walk about one mile without fatigue; three miles causes great exertion. Present illness apparently originated in some sort of acute hysterical attack five years ago. Then total suppression of urine for five days; present trouble has continued since that date, but symptoms more severe during the past year. Physical examination: well developed and nourished, picture of health, marked evidences of being subject to external and internal suggestion.

OBSERVATION III. Young woman, married, twenty-two or twenty-three years of age, with neurotic antecedents. Present condition of several years' duration. Health poor generally; dyspepsia; unable to eat more than the slightest quantity of food; irritability and torpid action of the bowels alternating with each other; great physical fatigue; very marked symptoms of pseudo-angina pectoris, which always caused much alarm. The fright from these attacks induced, in turn, numerous symptoms. The cardiac attacks were brought on by physical exhaustion, mental irritation, and indigestion. In consequence of last, patient even refused to put water into her stomach. Under the Weir-Mitchell treatment patient was taught to take and digest large quantities of food, and her physical condition improved generally, but she did not regain strength, and immediately broke down again on her restoration to her former habits of life.

OBSERVATION IV. Mrs. E., about thirty-five years old; naturally a strong, healthy woman. Well up to one year ago. Has led a fast life. Previous to breaking down, one year ago, had been drinking hard for two years. Finding herself becoming used up, broke off drinking entirely. About that time began to suffer from the same set of symptoms she has now; has been better off and on. Patient, when first seen, was in bed, where she had been for about ten days. Complained of palpitation, which she described as due to some supposed trouble of the heart, for which she had been treated. Also had "nervous feelings," the latter said to resemble the feeling from a faradic battery "that went all over her." These symptoms were very disagreeable, and alarmed her. Complained also of muscular weakness, "goneness," marked sleeplessness, general numbness and dizziness; unable to walk but a very short distance, because of prostration. Physical tire brought on attacks of the above symptoms. Patient was up late at night and obtained very little rest and sleep. Had been treated during the past year by various doctors. One had treated her for a long while for heart disease. Physical examination showed her to be a strong, healthy-looking woman, good color, heart normal, no objective signs. Told to get up next day and come to the office in a carriage for electricity. Patient considered her condition so serious that she was arranging to break up her household and go into the country.

OBSERVATION V. Mrs. S., thirty-five years old; married; has the appearance of being a strong, healthy person, with good color, but states that she never had been strong and was always easily tired. Eleven years ago, while going down front steps, slipped and fell, striking her back; fainted. Ever since has had a pain in the middle of her spine. This pain has increased of late, until now it is difficult for her to do any work. Is wearing a spinal corset for this, and is supposed to have some sort of lateral curvature. Has had subjective numbness of the whole left side, off and on, for eleven years. These symptoms antedate the fall. Feels tired all the time; lack of energy; little things worry her; has sleepy spells during the day-

time, when she lies down and sleeps soundly; almost impossible to keep awake at such times; walking, housework and driving tire her and make her back ache. This pain is "terrible"; feels dizzy at times, as if falling backward; certain positions in bed make her feel as if turning a somersault backward; nausea at times; has "gone," faint feelings. Patient says that sometimes, on waking from these sleepy spells, she knows what is going on around her, but cannot speak. Mother and maternal grandfather are said to have had "fits" (?) (no spasms). Number of others died of consumption. Physical examination: No objective symptoms, except great tenderness of the spine.

Mixed forms made up of both neurasthenia and hysteria of course occur. It is pertinent to know that the last three of the above accounts are here given almost *verbatim* as written some years ago, without any theory whatsoever in mind regarding the pathology of the affection. These are, therefore, unbiased accounts, so far as this inquiry is concerned.

It will be asked, On what grounds do I assume that these cases do not represent true nervous "exhaustion?" Putting aside my personal opinion, so far as it is based on an intimate knowledge of the circumstances of each case, I think the final history of them is sufficient to show that they could not have been true neurasthenia, and must have been one of the pseudo-types.

Case I improved at once after the first application of static electricity. Her symptoms rapidly left her, and in the course of a few weeks she was well.

Case II, although of two years' duration, improved still more rapidly and was free from neurasthenic symptoms after a few applications of static electricity, extending over a week or ten days.

Case III, after several years of invalidism and all the usual methods of treatment, including rest cure by myself without effect, was cured in two weeks by "Christian Science."

Case IV, after an illness lasting a year, reported herself free from symptoms after two applications of static electricity.

Case V, after an invalidism of eleven years, was free from symptoms after eight applications of static electricity, extending over two or three weeks.

I do not believe that it is possible that such rapid improvements or cures could be effected in true neurasthenia, or brought about by the psychical methods employed.

I doubt, however, if Cases IV or V were as well as they claimed to be. Further observation would probably have shown either relapse or residual symptoms. But long-continued observation showed that the results in the first three cases were permanent and substantial.

I would not have it inferred from these results that hysterical neurasthenia is always thus easily amenable to treatment, on the contrary, it may be as obstinate, or more obstinate, than other forms of hysteria, and I think is particularly liable to relapses. I have cited these particular cases because the rapidity of the cure may be taken as evidences of the pathology.

The difficulty of determining the real pathology of cases of this kind, that is, whether they are or are not hysteria, is increased, as I have said, by not knowing exactly what is hysteria aside from its manifestations. Pitres, in default of the possibility of giving a definition of hysteria, contents himself with enumerating the characteristics of its manifestations in five propositions. These five characteristics I shall presently make use of, but I think also some confusion has been due to the non-recognition of the fact that many of the symptoms of each neurosis under discussion are accidental and the result of external influence, and not essential manifestations of the disease. This is an important fact in the symptomatology and is particularly obvious in traumatic cases, in which local and emotional effects of trauma give a distinct picture to the disease. For example, many local pains are merely fortuitous circumstances, and originate in bruises and other local injuries. Likewise, the nausea, tremor, and cardiac and vasomotor disturbances which originated in and were at first the expression of fright; all these symptoms later persist as psychical phenomena after the subsidence of the originating causes. Hence they are mere fortuitous circumstances in the sense that they would not have existed, notwithstanding the presence of the hysterical state, excepting for the accidental causes. The same effect may be observed in so-called spontaneous cases; for instance, a patient with hysterical neurasthenia is unable to take exercise on account of pelvic pain, which she has been told is due to uterine disease, and for which she is being treated. This immediately subsides when she is assured that it is a habit pain, and she can take any exercise she pleases without doing harm. Another patient suffers from quite a severe pain of several years' duration, which can be traced to having worn a pessary some years previously. Such symptoms are plainly purely accidental symptoms in the course of the disease. In the absence, then, of any definite criterion for hysteria, and of any definite group of symptoms which alone can be called stigmata, the evidence for the existence of neurasthenia as a particular type depends upon the following circumstantial evidence:

(1) The so-called neurasthenic symptoms resemble, in their course and behavior, the accepted symptoms (stigmata) of hysteria. The five characteristics of hysteria have been summarized by Pitres as follows: "Hysteria is a neurosis of which the very varied symptoms have the common characteristics:

"(*a*) Of not being dependent on organic lesions.

"(*b*) Of being provoked, modified or suppressed by external influence or by causes purely psychical.

"(*c*) Of co-existing in variable numbers.

"(*d*) Of succeeding one another under different forms and at different periods in the same subjects.

"(*e*) Of not reacting seriously upon the general nutrition and on the mental state of the patients who are attacked by it."

The symptoms in hysterical neurasthenia exhibit these characteristics.

(2) Many cases begin as neurasthenia, develop later marked objective stigmata, like paralysis or anæsthesia, which later, in turn, disappear and leave the pure neurasthenic symptoms behind; or marked neurasthenic symptoms may be accompanied by the more slight stigmata above referred to, which, not being obtrusive, escape attention, but which are distinctly manifestations of hysteria. Or, neurasthenic symptoms occur in conjunction with typical hysterical stigmata, under circumstances that allow only of the interpretation that the neurasthenia is not a complication but a manifestation of the hysteria. As such cases indicate that hysteria may, and does, directly or indirectly, cause neurasthenic symptoms, therefore these symptoms by themselves without the stigmata would be perfectly compatible with this pathology.

(3) The disease, if not of too long duration, may sometimes be subject to comparatively rapid cures, or

to cures from influences which would not affect neurasthenia. Examples of this have already been given.

(4) Cases of hysterical neurasthenia are apt to be open to suggestion, auto or external, in an exaggerated way, as is characteristic of hysteria, but which is not so marked in true neurasthenia.

Hysteria is a state, just as sleep, hypnosis and the waking-life are states. The symptoms in part are a direct consequence of the state (for example, paralysis, anesthesia, double personality) and in part depend upon the effect of environment, that is, accidental causes. These latter are not the essential manifestations of hysteria in the sense that pain is an essential manifestation of neuritis, or anesthesia of tabes.

The study of hysteria as a pathological state is beyond the scope of this paper, but I propose to offer a critical study of a case[*] of hysterical neurasthenia from the point of view of the genesis of the symptoms, and the differentiation from true neurasthenia. I think it will be plain that the symptoms in their behavior and course correspond with the five characteristics laid down by Pitres, while the effect of accidental causes in producing fortuitous symptoms will be apparent. Such a study will enable us, I think, to understand the genesis and the reason for persistence of many of what I have called the fortuitous symptoms. In most cases it is possible to make out that of an apparently chaotic mass of symptoms many have developed and persisted as the result of certain definite causes and laws. Amongst these last the following may be enumerated as the chief factors in the etiology of the fortuitous symptoms:

(1) Accidents involving trauma or psychical shocks, toxic diseases, like grippe, inflammatory processes — in fact any pathological process. Nervous manifestations, once started in this way, persist under the influence of the mind.

(2) A conspicuous mode in which the mind acts upon the body is by auto-suggestion in the form of apprehension or expectation. That is, for example, the patient has the apprehension or expectation that if she walks she will become tired or have a fainting fit; if she eats food the act will be followed by indigestion and perhaps palpitation; that if she has a headache and attempts exercise there will follow trigeminal neuralgia, spinal irritation, and so on, and consequently, as the result of an auto-suggestion of this kind, these symptoms follow as a necessary sequence when the button is pressed, or without metaphor, when the various conditions are fulfilled.

(3) Or the suggestion may come from without, especially from the medical attendant, who, over-cautious and uncertain himself, warns the patient that she has heart disease or pelvic disease, or is not physically strong enough to do certain things. The accepted symptoms then follow, and by degrees a mass of symptoms becomes cultivated in this way.

(4) Many symptoms are simply the persistence of the physical expression of emotion.

(5) It follows that most of the sensory symptoms, including the sense of fatigue, have a purely psychical origin and are, therefore, quasi-hallucinations. That the feeling of fatigue may have a purely psychical origin, may be a pure hysterical stigma, and does not represent real exhaustion, is an important fact that should be recognized. This symptom may be cultivated by injudicious treatment.

[*] Withheld from publication.

(6) As a result of all these influences, many symptoms become mere habit symptoms.

(7) Many symptoms are the result of a simple lack of inhibition.

Clinical Department.

A CASE OF GONORRHEAL ARTHRITIS, TREATED BY FREE INCISION AND IRRIGATION OF THE KNEE-JOINT.

BY JOHN HOMANS, M.D.,
Surgeon Massachusetts General Hospital.

R. S., age twenty-five, single, entered the medical side of the Massachusetts General Hospital April 11, 1898.

Habits. — Alcoholic excess (none for ten weeks). Smokes to excess. Use of tea and coffee moderate.

Past History. — Clap four weeks ago, left epididymitis. Two weeks ago discharge ceased, under medication; running began again three days ago. Seven days ago some pain and stiffness in both knees, persisted in left knee. Three days ago left knee began to swell and grow painful suddenly; was obliged to give up work and take to bed. Feverish; no chill. Pain and swelling have increased. Urine thick and red; fair amount. Glands in groin slightly enlarged and tender. Left knee swollen, very tender, not red. Bursa in front of patellar tendon stands out plainly. Slight discharge, muco-purulent, can be squeesed out of urinary meatus. Urine, normal, neutral, 1,011; albumin, faint trace; no sugar; sediment, squamous epithelium and few leucocytes. Urethral discharge shows few free biscuit-shaped diplococci, rarely a leucocyte.

April 15th. Urine alkaline to-day. Patient more comfortable; much less pain; swelling diminishing.

April 20th. White blood count corpuscles 10,900. Patient has been kept awake for the past four nights with pain in knee. Swelling larger again. Transferred to surgical side for operation.

April 22d. Prepared for operation.

April 23d. *Operation.* — By J. Homans, in amphitheatre; patient put under ether. Incision through skin, two inches long, over outer edge of patella, dissection being carried down to capsule of knee-joint. Capsule opened and ten ounces of thin brownish seropurulent fluid evacuated. Cavity explored with finger and several fibrinous flakes turned out. Joint thoroughly flushed with normal salt solution at a temperature of 120° F. Sterile wicks passed through and cavity wiped out.

A second douching was then given, a large gauze wick drawn through, and two provisional silkworm-gut sutures put in place. Outer ends of wound sutured with silkworm gut; dry dressing with compression. Ham splint.

Operation. — Opening of knee-joint. Disease, gonorrheal arthritis.

April 24th. Morphia one-eighth grain last night for pain. Dressing not changed.

April 26th. Dressing changed. Considerable diminution in amount of synovitis since first put up. Clean. Slight serous discharge on removal of wick. Feels more comfortable.

April 29th. Temperature normal. Leg perfectly comfortable. Dressing not taken down.

Report of Culture. — No gonococci nor tubercle bacilli.

May 3d. Perfectly comfortable.

May 4th. Redressed. Small granulated wound still remains. Dry dressing.

May 10th. Discharged well.

Recent Literature.

The Principles and Practice of Medicine, Designed for the Use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D., etc. Third edition, entirely revised and enlarged. New York: D. Appleton & Co.

This edition of Dr. Osler's "Practice of Medicine" succeeds its predecessor at an interval of three years. The book has made an assured place on the shelves of the best class of professional readers and users, whether practitioners or consultants. It was a good book before, and the author has made it a still better book now. There are some new articles, many have been rewritten, and into others new matter has been incorporated. The section on Diseases of the Nervous System has been rearranged.

There are still some minor defects of detail — specks in a pot of precious ointment — which have escaped the keen revisionary eye, and which another revision will doubtless remove. Who or what can abide the last extremity of regard for what is done amiss?

The volume is compact, of a convenient size for holding in the hand, not too bulky. The paper and print are excellent. Taken altogether this is one of the very best books of its kind extant.

The Medical Record Visiting List, or Physician's Diary for 1899. New revised edition. New York: William Wood & Co.

We are glad to welcome another edition of this now familiar visiting list. It is of convenient size to carry in the pocket, well arranged for the object for which it is designed, and rich in information regarding medical matters easily forgotten. We can recommend it cordially to those physicians whose practices warrant the use of such an aid.

The Care of the Baby. A Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and in Disease. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Physician to the Children's Hospital, to the Methodist Episcopal Hospital and to St. Agnes' Hospital, Philadelphia; Member of the American Pediatric Society and of the Association of American Physicians. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

Dr. Griffith has written one of the best books on this subject which has yet appeared.

In his second edition he has enlarged the work considerably, and with his usual painstaking and careful precision has submitted it to a complete revision. The book is a very practical one, and covers thoroughly what it undertakes to do on its title-page.

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ANNUS MEDICUS MDCCCXCVIII.

DURING the year 1898, owing to the manifestation on the part of this country and European nations of an increased tendency towards territorial expansion, particularly in the tropical regions of the world, and to the many problems relating to tropical diseases and the acclimatization of American and European soldiers in the countries which rightly or wrongly have been brought under their military control, it is but natural that the subject of tropical medicine should have assumed a prominent place in medical thought and literature.

The Spanish-American War on this continent, and the Anglo-Egyptian expedition to Khartoum, not to mention French and German activity in Central Africa and the Soudan, have contributed largely to this result. The important and interesting proceedings of the Section on Tropical Medicine of the British Medical Association, and the National Quarantine Convention held at Memphis, Tenn., this fall, are evidences of this trend of medical thought.

The fact that hygiene and sanitation are the most important functions of the military and civil surgeon in the tropics has been forced upon the medical profession, and it is to be hoped upon Congress and the War Department of this country.

The wonderful results attained by that gallant officer General Wood, a man thoroughly trained in medicine as well as in military affairs, in the administration of the tropical province of Santiago has given a brilliant example of what can be done in tropical sanitation by men of experience and executive ability. In other directions the year has been marked by general progress rather than by brilliant discoveries or accomplishments.

May we hope that the lessons of the year 1899 will be due less to the bitter experience of war and pestilence, and more to the results of the application of the knowledge gained by the study of the medical sciences to the cure and prevention of disease!

EPIDEMICS.

YELLOW FEVER.

As for the endemic prevalence of yellow fever in Cuba and Brazil, where in the seaport cities, at least, it is constantly present, the winter of 1897 and 1898 proved a mild one. There were remarkably few cases in the city of Rio di Janeiro, and during the week ending February 25th in Havana there were no cases of yellow fever reported, an occurrence unprecedented for many years. Throughout the island of Cuba there were very few cases reported during the early months of the year, a fact which was perhaps due to the circumstance that very few reinforcements of unacclimated troops from Spain were received, and that certain changes were made in the disposal of the troops at the military hospitals in Havana, which rendered it less likely for patients who were sent to the hospitals for other diseases to become victims of yellow fever. Between January 1st and April 21st, when the port of Havana was blockaded, in consequence of which no further sanitary reports were received until after peace was declared, very few Spanish soldiers were brought to Havana, and the disease, therefore, lacked material to feed upon.

The crowding, starvation and other unsanitary conditions which existed in Havana as a result of the blockade, and the excessive heat of this unusually severe summer season, did not increase the mortality from yellow fever in Havana to an extent nearly commensurate with the increase in the mortality from gastro-intestinal diseases. In the months of August and September in Havana there were only 43 deaths from yellow fever, while during the same period 261 deaths resulted from enteric fever, 211 from dysentery, and 586 from enteritis.

There was therefore very little yellow fever in Havana at the time of the raising of the blockade and the consequent arrival of a large number of Americans at Havana, and hence but few of them became infected with the fever. The mortality, however, among Americans attacked by the disease was abnormally high, and in 12 cases reported on November 11th by Dr. W. F. Brewer, the sanitary inspector of the port, there had been 7 deaths.

Not a few of the Americans who developed yellow fever during a return voyage from Havana during the autumn have died after reaching these shores. Conspicuous among these was the late Colonel Waring, of New York.

At Santiago throughout the year, both before and after its occupation by the United States troops, there has been comparatively little yellow fever. On July 10th, after the arrival at Siboney of the starving refugees who were released from Santiago by order of General Shafter to consume the supplies furnished by the United States and infect its troops with tropical diseases, 14 cases of yellow fever were reported. Subsequent reports gave very few cases of yellow fever either among the soldiers or civilians at Santiago, although at first there was some confusion, owing to the atypical character of the severe malarial infections which occurred, and which were not infrequently mistaken for the former disease. Malaria, enteritis and amebic dysentery proved vastly more fatal among the American troops about Santiago than did yellow fever.

The neighboring island of Jamaica, which suffered an epidemic of yellow fever during 1897, was remarkably free from the disease this year.

In order to meet the conditions which inevitably resulted from the Spanish-American War, and the transportation to and from Cuba of large numbers of troops at the very height of the yellow fever season, Surgeon-General Wyman, of the Marine-Hospital Service, early in the spring perfected plans to prevent the introduction of yellow fever from Cuba. Rigid quarantine regulations were enforced at Ship Island and Dry Tortugas, and Marine-Hospital inspectors were stationed at every point along the Atlantic Ocean and the Gulf of Mexico where troops landed or returned from Cuba.

Notwithstanding these precautions there have been two epidemics of yellow fever in the Southern States this summer, both originating on the Gulf Coast, and both of obscure origin. The first, which began in McHenry, Miss., in the latter part of May, was fortunately brought rapidly under control by the Marine-Hospital Service and the local authorities, otherwise the fact that it occurred early in the season, and many months before the first frosts were due, might have rendered it the most disastrous visitation which the country has experienced for years.

The second epidemic, which started in Franklin, La., in the early autumn, spread rapidly, resulted in paralysis of trade, government and all forms of activity throughout the state of Mississippi, and also spread extensively in the neighboring States, was cut short only by the early frosts.

Although the type of the disease was mild, and the mortality consequently light, the resulting panic was extreme, and the consequent effect upon all forms of business and the pecuniary loss were severe.

The earlier epidemic, which began on May 20th at McHenry, a town on the Gulf Coast between New Orleans and Mobile, was at first supposed to have been communicated from the Ship Island Quarantine Station, but later it was shown that this could not have been the case. The Marine-Hospital Service put in force a house to house inspection at McHenry, and established an isolation hospital. A detention camp was established at Fontainebleau, and an inspection made of all points on the Gulf and Ship Island Railway south of Hattiesburg showed that the disease was confined to McHenry, and on July 4th it was known that the coast from New Orleans to Mobile was free from infection. On July 12th the last case of yellow fever had been discharged and the detention camp closed. The epidemic was, by the energetic measures which were adopted, confined entirely to

McHenry, Miss., where twenty-two of the total of twenty-four cases occurred. One case occurred in Eucutta, Miss., and one in the country four miles from McHenry. The mild character of the epidemic is shown by the fact that there were no deaths.

Early in August a few cases of yellow fever of a mild type were reported among the United States Marines at Key West, although there was a disagreement among experts as to the diagnosis. A Marine-Hospital Service Detention Camp was established at Egmont Key, and all persons not immune were detained during the period of incubation of yellow fever. No spread of the disease resulted and it was afterward determined that these cases were dengue and not yellow fever. Several cases of yellow fever were brought to the Tortugas Quarantine Station in August on steamships from Havana.

The second epidemic of yellow fever, that at Franklin, began with a death on August 11th of a man suspected to have the disease. The supposed source of infection, which was certain old sheds and wooden buildings, was destroyed by fire. A sanitary cordon was established around the town, and all precautions taken, yet on the 23d of August a second case, this time of undoubted yellow fever, occurred. A detention camp and train inspection service were established, and most of the industries of the town were shut down. On August 31st suspicious cases were reported at Orwood, Miss., and later at Taylor, a town on the Illinois Central Railroad; these cases were soon afterward definitely determined to be yellow fever. The source of infection was not definitely ascertained. All precautions were immediately taken to prevent the spread of the disease. Early in September a case appeared at Jackson, Miss., and soon afterward at Oxford and numerous other points in Southern Mississippi, and in the middle of September a case occurred at New Orleans, La. A general exodus to the North began from all parts of Southern Mississippi and it became necessary to furnish facilities for the disinfection of coaches used for refugees at Atlanta.

In spite of the precautions taken by the State and City Boards of Health the disease spread in New Orleans, and during September appeared at numerous towns and parishes in Louisiana. On October 11th the entire States of Mississippi and Louisiana were placed under quarantine. In Mississippi the panic caused by the disease was out of all proportion to its severity. On the occurrence of the earlier cases at Natchez, although on account of the precautions which were immediately taken the danger was slight, the governor of the State and other prominent officials immediately left for the North. No business was for some time transacted at the courts or the State House. The general fright and exodus, and the interference with the transportation of supplies due to quarantine, rendered it very difficult in many instances to get supplies to the population of the infected districts, chiefly colored, who were crowded together in quarantine, no egress being allowed, so that much suffering resulted from starvation as well as from fever. The hardship to the laboring population from the suspension of industries was also great.

In Louisiana the sensible action of the State Board of Health in calling attention to the mild type of the disease, and in consequence thereof imposing less stringent regulations, and raising quarantine at the earliest possible moment, had the effect of markedly lessening the panic caused by the disease, and the consequent paralysis of business and suffering of the industrial classes.

By October 14th a light frost appeared in the lower Mississippi Valley, and consequently a rapid decline in the fever began, and by November 10th it had practically died out.

The final statistics showed that the total number of cases in Louisiana had been 1,470 with 51 deaths, a mortality of 3.47 per cent. and that the total for Mississippi was 985 cases and 63 deaths, or 6.40 per cent. Therefore the total for the epidemic was 2,546 cases and 115 deaths, or 4.68 per cent.

The towns most seriously affected were Franklin, La., where there were 607 cases, with, however, only 9 deaths, and Wilson, La., where there occurred 303 cases and 7 deaths.

In Mississippi there were 208 cases and 11 deaths in Jackson, 106 cases and 14 deaths in Taylor, 134 cases and 14 deaths in Harriston, and 100 cases with 5 deaths in Orwood.

In October the death of Colonel Waring in New York occurred from yellow fever contracted at Havana during his inspection of the sanitary conditions of that city, and declaring itself during his voyage home. On November 18th an engineer in the employ of the Nicaraguan Canal Commission, just returned from Costa Rica, died in Washington from yellow fever, which also appeared during the voyage home.

As there seemed every probability that yellow fever would be brought to Montauk Point on the transports arriving from Santiago, a thorough inspection was carried out before the troops were allowed to embark, and a second inspection before landing at Montauk, and so thoroughly was the work done that only one case of the disease was found at Montauk. This case occurred in a civilian from Macon, Ga., who was attacked while on the voyage, and died later at Swinburne Island, New York, where he was taken together with twenty sick soldiers who proved to have merely malarial fever.

In Mexico yellow fever has been more or less prevalent during the year, especially at Tampico, and it has been found necessary to maintain guards and quarantine along the Texas frontier. No yellow fever has reached the United States from Mexico and several reported outbreaks at Galveston and points on the Texas frontier were on investigation not verified.

PLAGUE.

The year 1897, as our readers will remember, ended with plague epidemic in Bombay and Poona,

but declining in other districts of India. In the unfortunate city of Bombay, however, in which plague had first appeared in August, 1896, and during the autumn and winter had devastated the city, and had declined somewhat during the summer, only to reappear and again assume alarming proportions in the autumn, this recrudescent epidemic was in full blast. Never since the date of the first outbreak has Bombay been free from this disease, and in the first week in January, 1897, there were upwards of 100 deaths a day reported. In Poona also the epidemic had assumed serious proportions.

At the beginning of the year there were also a moderate prevalence of plague in Taiwan, Formosa, and a few sporadic cases in Hong Kong.

During January and February plague in Bombay constantly increased, and the danger of its importation to the Turkish Empire and thence to Europe was recognized to be real.

In order to avoid the quarantine at Camaran many Indian pilgrims went to Muscat and other points on the Arabian Coast, and thence direct to Jeddah without undergoing quarantine. The International Sanitary Commission decided in February to impose quarantine on arrivals at points on the Persian Gulf and Muscat, at Bassorah and Agir, as well as at Camaran, against arrivals from Hindustan, and on February 27th the Russian Government prohibited pilgrimages to the Hedjaz, and France prohibited the pilgrimage from points in Algeria and Tunis.

In March the Turkish Superior Council of Health requested the Anglo-Indian Government to close the ports of Kurrachee and Chittagong as points of departure for pilgrims, as had already been done for the Bombay Presidency. This request the Indian Government did not accede to, but contented itself with a ten days' detention of pilgrims at Kurrachee and Chittagong for observation. The Russian Government at the same time requested the Sublime Porte to take measures to improve the quarantine establishments along the Red Sea and Persian Gulf, which were defective both on account of their disadvantageous location or limited extent, and to carry out a marine patrol of the coast.

In March, notwithstanding these efforts, plague broke out in Jeddah. On the receipt of this information the Turkish Government proclaimed that the town of Jeddah should be isolated, and pilgrims to Mecca be required to enter the port of Ras-el-as-Suad, four hours' journey from Jeddah. It is interesting to note that the outbreak at Jeddah was preceded by an epidemic among the goats and mice.

Plague was also brought to Burmah in April by pilgrims from Kurrachee. The sanitary condition of Burmah was wretched, and the sanitary administration of the port ineffectual. In March and early April 34 cases of plague occurred at Jeddah.

Meanwhile the plague continued to increase in the Bombay Presidency, and in March nearly five thousand deaths were reported. In April the disease began to decline in the city, but in Kurrachee it was increasing and in the Hyderabad Province was widespread.

In April a few cases of suspicious illness occurred in Calcutta, which were later proved by bacteriological examination to be plague. The Government took prompt and engergetic measures to prevent the spread of the disease, owing to which, and to the favorable season of the year, it was held in check, so that there occurred only 25 cases and 12 deaths — not a very serious record for a city of 800,000 inhabitants.

In Hong Kong the epidemic increased during March, April and May, but in June began to decline rapidly. The mortality in Hong Kong was very high, from 80 to 90 per cent.

In Formosa during May and June there were about 3,000 cases and 2,000 deaths.

During May plague in Bombay declined rapidly, and hopes were entertained that during the summer it would disappear, but this much-desired event did not take place, and in the early autumn the epidemic, though by no means as serious as that of the preceding summer or the autumn of the previous year, began to slowly increase.

In Bombay it was noted during the autumn that the population was becoming accustomed to plague, as they had previously become to cholera and small-pox, and that at the mills and other business centres the work was being continued as if no epidemic existed in the city.

In Calcutta also sporadic cases were reported during the entire summer.

During June the return of the pilgrims from the Hedjaz to Turkey took place, but the quarantine at and detention for examination in Turkish ports were enforced, and plague did not reach European shores.

In October the plague declined slightly in Bombay, but increased in the remainder of the presidency and the districts to the south.

In October an outbreak of plague occurred in a village in Samarcand, in Asiatic Russia. As this district is separated from India by the Himalaya Mountains, and by a distance of seven hundred miles, it seemed improbable that plague had reached that point from India. Prompt and energetic measures were at once taken by the Russian Government to control the epidemic, and a large force of physicians dispatched to the district. By December 233 deaths had resulted in the infected portion of Samarcand. Late in the autumn plague was declining in Bombay, but increasing in Mysore, Madras, and other parts of Southern India, so that the prospect that India will be a plague centre during the coming year is a probable one.

The outbreak of plague in Vienna, which occurred in October, through the infection of a careless laboratory servant in handling animals inoculated with the disease, and resulted in the death of the servant, of Dr. Müller who attended him, and one of his nurses, attracted attention to the precautions which must be taken in the conduct of laboratories where cultures are made of infectious diseases. The outbreak was limited,

by thorough isolation and other precautions, to six cases.

SMALL-POX.

The year has witnessed in our Southern States, notably Alabama, Mississippi and Georgia, an epidemic of small-pox of greater extent and severity than has occurred in this country for several years. It will be remembered, in the autumn of 1897 an epidemic prevailed in Atlanta and the surrounding country, the disease having spread to Georgia from Birmingham and Montgomery, Ala., to which cities it had spread from an original focus in Pensacola, Fla.

The year opened with a rather active epidemic prevalent in Alabama, the chief foci being Birmingham and Bessemer. In Atlanta and the surrounding country the disease was still active. The negro population furnished almost the entire material on which it fed, very few cases occurring among the white residents. The ignorant prejudice of the colored population against vaccination and the overcrowding of their quarters rendered vaccination and the enforcement of sanitary regulations difficult, and curtailed the effectiveness of the work of the Marine-Hospital Service and local health officials.

Small-pox during the winter was rather widely scattered through the Southern States, a moderate number of cases occurring in Washington County, Fla., and Middlesborough, Ky., scattered cases being reported from various points in Tennessee, North Carolina, South Carolina and Virginia. In Birmingham and Bessemer, Ala., where vaccination could be enforced under city ordinance, the disease diminished rapidly during the winter, but its spread in the country mining districts failed to be checked, owing to the opposition of the population to sanitary measures, and the impossibility of enforcing them. The same held true of Georgia, the disease in Atlanta being brought under control, while in the surrounding country districts it continued to prevail to a marked extent.

During March a severe epidemic occurred at Middlesborough, Ky., the disease attacking, as in the other Southern States, the negro employees of the mines and factories, and attaining a considerable degree of headway before the municipal and county authorities, who were utterly inefficient and were crippled by lack of funds, called upon the governor of the State, who asked the aid of the Marine-Hospital Service.

A surgeon, Dr. Wertenbaker, of the Service, was detailed to co-operate with the State authorities by furnishing inspection, vaccination and disinfection service, which measures were carried out so thoroughly that by the middle of April the disease was brought under control and quarantine was raised.

During April there was an epidemic of small-pox at Little Rock, Ark., which the aid of the Marine-Hospital Service was requested to suppress, and the disease was widely disseminated through the South, being reported at very numerous points in Tennessee and South and North Carolina. The disease undoubtedly was disseminated in the usual manner, namely, by persons who had light or convalescent types of the disease travelling to non-infected points, and there becoming the centres for its spread in fresh territories.

The outbreak in Little Rock, for instance, was traced directly to a negro convalescent who came there from Birmingham, Ala., during the first week in January. The Little Rock epidemic was almost entirely confined to the negro population.

During June there was an active epidemic at Shubuta, Clark County, Miss., and a moderately severe one in Iredell County, N. C., and the disease had reappeared in Washington County, Fla.

In June sixteen cases of small-pox occurred in Fredonia, N. Y., the disease having been brought there by a travelling theatrical troupe, which had been spending the winter in the South, and which was quarantined while at Geneva, N. Y., on account of the existence of small-pox among the members. Fifty cases of small-pox in eleven towns and cities resulted directly from the visits of this troupe.

All through the spring and summer small-pox spread through the Southern States to an extent unknown in recent years, Knoxville, Tenn., and Columbia, S. C., being especially afflicted. During summer and early autumn there was a mild epidemic in Southern Ohio.

Epidemics occurred during the year, although of slight extent, in New Mexico, Texas and Colorado.

During the winter a severe epidemic occurred in Middlesborough, near Newcastle-on-Tyne, England, beginning in November, and by March had resulted in no less than 800 cases and 70 deaths. An interesting fact in this epedemic was the escape of small children, the infant vaccination having been generally attended to, while, owing to prejudice against vaccination, that of adults was far from general enough to be efficient.

The practical failure of the vaccination bill in England this year, owing to the so-called conscience clause, shows plainly enough that the lessons of the Gloucester and Middlesborough epidemics have not proved severe enough to uproot the widely-spread British prejudice against interference with "personal liberty" which the anti-vaccinationists find in a compulsory vaccination law. Doubtless, in the future, severer visitations will be required to teach the hard lessons of experience.

In St. Petersburgh small-pox was, as usual, prevalent during the winter.

In Japan there was also a moderately severe epidemic, chiefly confined to the Yezo district.

In South America, Valencia, in Venzuela, was visited by an epidemic during April, and in Rio di Janeiro there was the usual prevalence of the disease during the winter months.

In Cuba the disease has found during the year its usual fertile feeding ground, and the conditions incident to the Spanish War have by no means tended to diminish its prevalence.

CHOLERA.

The history of cholera during the year presents little of interest. As usual, it has been continually prevalent

in Calcutta, but at no time epidemic, not much over 100 deaths a month occurring in the months of April, May and June, when it was most extensive. During October and November deaths from this cause were very rare, even in Calcutta. Bombay has been very lightly visited by cholera during the year. In Madras cholera was epidemic during the spring and summer, and in September 169 deaths occurred there from this cause. In October it rapidly declined. Cholera has been extremely rare in Japan this year, and there has been no serious epidemic. Hong Kong. also, practically escaped the disease.

THE ANTITOXINS.

The good results of the use of diphtheria antitoxin have been continued during the year and its inestimable value as a remedial agent confirmed.

In tetanus many reports of cases treated by antitoxin have been published, but analysis shows that in most of them the serum has been employed in too small amounts and too late in the disease to prove of value. Encouraging results have been reported in a few cases where sufficiently large doses of the antitoxin have been injected intravenously, but the reports are still too few for final judgment, although enough has been done to show the importance of continuing the large doses, and of continued effort to secure serum of higher antitoxic concentration. The intracerebral injection of antitoxic serum has been successfully practised during the year, and, in conjunction with the intravenous injection, demands further trial.

The value of the antistreptococcic serum, and of the various tuberculin preparations, still remains an uncertain question.

The antiamaryllic serum of Sanarelli has likewise not demonstrated its value.

MEDICAL CONGRESSES AND MEETINGS.

The Fourth International Congress of Physiologists was held at Cambridge, England, from August 23 to 27, the Third International Congress of Applied Chemistry at Vienna, beginning on July 28, the Ninth International Congress of Hygiene and Demography at Madrid, April 10 to 17.

The Thirteenth Annual Meeting of the Association of American Physicians was at Washington, D. C., May 3, 4 and 5.

The Forty-ninth Annual Meeting of the American Medical Association was held in Denver, Col., June 7 to 10.

The American Surgical Association met at New Orleans, La., April 19 to 21. The Twenty-fourth Annual Meeting of the American Neurological Association was held in New York, May 26 to 28. The American Orthopedic Association met at Boston, Mass., May 17 to 19. The American Gynecological Society held its Twenty-third Annual Meeting at Boston, May 24 to 26. The American Association of Genito-Urinary Surgeons met at West Point on June 7 and 8. The American Pediatric Society met in Cincinnati, June 1 to 3. The Fifteenth Annual Meeting of the American Climatological Association was held at Bethlehem, N. H., on August 31 and September 1. The First Annual Meeting of the American Gastro-Enterological Association was held at Washington, D. C., Tuesday, May 3. The Annual Meeting of the American Medico-Psychological Association was held in New York, May 23 to 26. The American Electro-Therapeutic Association held its Seventh Annual Meeting at Buffalo, N. Y., September 13 to 15. The Annual Meeting of the Mississippi Valley Medical Association was held October 11 to 14 in Nashville, Tenn. The Eleventh Annual Meeting of the Southern Surgical and Gynecological Association was held December 6 to 8, in Memphis, Tenn. The Sixty-Seventh Annual Meeting of the British Medical Association was held at Edinburgh, July 26 to 28. The Twelfth Congress of the French Surgical Association was held in Paris, October 17. The Sixteenth German Congress of Internal Medicine was held in Wiesbaden, April 13 to 16. The Twenty-seventh Congress of the German Surgical Society was held in Berlin, April 13 to 16. A Congress of Gynecology, Obstetrics and Pediatrics was held at Marseilles, October 8. The German Balneological Society held its Ninth Meeting on March 11 in Berlin. The Ninth Congress of French Alienists and Neurologists was held this year at Angers on August 1.

LECTURES.

In connection with established lectureships in the United States and Great Britain, the following lectures and orations were delivered:

The Shattuck Lecture, before the Massachusetts Medical Society, on "The Influence of the Climate on the North American People," by Sir William H. Hingston, M.D.; the Cartwright Lectures, before the College of Physicians and Surgeons of New York, on "The Surgery of the Stomach," by W. W. Keen, M.D., LL.D.; the Middleton-Goldsmith Lecture, before the New York Pathological Society, on "The Establishment and Conservation of Purity in Public Water-supplies, especially those of Great Cities," by Prof. William T. Sedgwick; the Harveian Oration, on the "Influence of Character and Right Judgment in Medicine," by Sir Dyce Duckworth, M.D., LL.D.; the Lumleian Lectures on "The Principles which Govern Treatment in Diseases and Disorders of the Heart," by Sir Richard Douglas Powell, Bart., M.D.; the Hunterian Lectures on the "Surgery of the Kidney," by Henry Morris, F.R.C.S.; the Bowman Lecture on the "Etiology and Educative Treatment of Convergent Strabismus," by Priestley Smith, M.R.C.S.; the Cavendish Lecture on "Growth as an Agent in (1) Production and (2) the Removal of Deformity," by Howard Marsh, F.R.C.S.; the Croonian Lectures on "The Chemical Products of Pathogenic Bacteria Considered with Special Reference to Enteric Fever," by Sydney Martin, M.D., F.R.S., F.R.C.P.; the Milroy Lectures on the "Natural History of Vaccinia," by S. Monckton Copeman, M.A., M.D. Cantab., M.R.C.P.;

the Bradshaw Lecture on "Myxedema and Allied Disorders," by William M. Ord, M.D., F.R.C.P.; the Erasmus Wilson Lectures on the "Pathology and Treatment of those Diseases of the Liver which are Amenable to Direct Surgical Interference," by H. J. Waring, M.S., B. Sc., F.R.C.S.; the Lettsomian Lectures on the "Affections of the Urinary Apparatus in Children," by John H. Morgan, M.A. Oxon., F.R.C.S. (Lecture III); the Goulstonian Lectures, "Observations on the Pathology of the Kidneys," before the Royal College of Physicians of London, by John Rose Bradford, M.D., D.Sc. Lond., F.R.S.; the Hunterian Lecture on "What Operation Can Do for Cancer of the Tongue," by Henry T. Butlin, F.R.C.S., D.C.L. (Illustrated).

THE HEALTH OF THE ARMY IN THE SPANISH WAR.

In endeavoring to ascertain the actual statistics as to the deaths from disease and wounds received in battle we are hampered by the fact that in the summary of the surgeon-general's report for the year no mention is made of deaths from other causes than typhoid fever, malarial fevers, and diarrhea and dysentery. These diseases are said to have resulted in 1,130 deaths, while the total number of deaths of which full particulars had been received was 1,715.

Other estimates place the total number of deaths in the army during the war at 2,910. Of these the deaths of 2,485 enlisted men and 80 officers resulted from disease; while 280 enlisted men and officers were killed in battle, and 61 enlisted men and four officers died of wounds received in battle.

The fatal casualties in battle in Cuba were one officer to 10 men — a percentage which is unusually high, and testifies well to the personal valor displayed by the American officers in leading their troops — about the same proportion of deaths from disease and in battle obtained as in the Civil War; but in comparing the two it should be remembered that a continuation of hostilities under the climatic conditions of Cuba would have greatly increased the proportion of deaths from disease.

The present status of our knowledge makes it very probable that when the returns are complete the highest death-rate of the war will be shown to be that from typhoid fever contracted in the great camps established in the Southern States for the training and "acclimatization" of our troops, and the next largest proportion from the various forms of enteritis and the pernicious types of malaria, which, had it not been for the demand of the general staff for the return of the army from Santiago to the Northern Coast, would have caused as great a mortality as it had already morbidity in the Fifth Army Corps.

Too much importance cannot be attributed to the shortness of the period of hostilities, the early surrender of Santiago, and consequent possibility for the quick return of our troops from Santiago, and the breaking up of the Southern camps, in preventing a high mortality which so many causes would have rendered inevitable had the war continued.

Some of the reasons which may be enumerated for the inevitable occurrence of this mortality are: first and most important, the ignorance of the officers and men of the volunteer service of the rules for camp sanitation and of the necessity for their observance; second, the absence of the discipline which would have ensured this observance if understood.

The petty policy of Congress, which out of its tender solicitude for the voters kept the army down to the smallest number absolutely necessary for police duty on the western frontier, together with the eagerness of that same governing body to precipitate the nation into a war, we have many times alluded to in these columns as responsible for the necessity of hastily recruiting an undisciplined volunteer army. The fact that the important staff positions of inspectors were filled by appointees from civil life and not from those whose military training had fitted them for the duties of these positions, so important to the proper observance of camp sanitation, has also been commented upon.

The foresight and intelligence with which the medical staff of the navy prepared for war was noticeably absent from the preparation, or lack of preparation, made by the army medical staff. The act of Congress by which the medical force was increased by 650 contract surgeons was not passed and approved till May 12th, a circumstance which rendered a thorough and proper examination for these positions impossible.

The omission of Congress to provide any medical officers for manning division or base hospitals, and also to provide for the establishment of men for service in the hospital corps, has already been commented upon.

An ambulance train and three hospital ships, one of which, the *Relief*, was fully and admirably equipped, were prepared and put in service by the medical department of the army. The hospital ship *Relief* arrived at Santiago on July 7th, and received many of the wounded from the attack on Santiago.

The haste and confusion which characterized the embarkation for Santiago, resulting in the leaving behind of most of the ambulances and a large part of the medical supplies, were the cause of much suffering after the fights at El Caney and San Juan. The heroism and devotion of the medical officers on duty in the care of the wounded, under the difficulties thus created, form part of the history of the war.

With the rapid transfer of the troops debilitated by disease from Santiago to Montauk Point, the establishment and manning of temporary hospitals, a general hospital and a detention hospital, for the large number of those whom it was essential to keep for a time under observation before admission to the general hospital, became necessary. The rapid arrival of the transports, often as many as four in one day, between August 13th and 31st, rendered the preparation and administration of the detention and general hospitals and the proper care and feeding of this large number of men a very difficult problem. In the solution of this problem the army authorities received most efficient aid from various

branches of the Red Cross Association and the various volunteer aid associations. The diet kitchen established by the Massachusetts Volunteer Aid Association was extremely efficient in furnishing suitable nourishment for the sick and convalescent soldiers, not only of the Massachusetts volunteer regiments but the regulars and volunteers from other States.

The inevitable congestion at Montauk Point and the overcrowding of the excellent hospitals which were finally established at Camp Thomas were relieved by the immediate co-operation of the various seaboard cities, and by hospitals and aid associations all over the country. The equipment by private charity of the hospital ship *Bay State*, perhaps the most completely and efficiently equipped vessel ever fitted out for such a purpose, which made one trip to Santiago and two to Porto Rico, bringing sick and convalescent soldiers to be cared for in the Boston hospitals, is a noteworthy instance of the aid furnished the government in the care of the sick soldiers by private charitable enterprise.

Several hospital trains were sent from Philadelphia to Chickamauga, and also from Boston, from Portland, Me., and other cities and States. Municipal and private hospitals vied with one another in offering facilities for the care of the soldiers, and gave a splendid example of what the sympathy and charitable efforts of the American people can accomplish when once aroused.

It gave especially an opportunity to many members of the medical profession to demonstrate extraordinary capabilities for self-sacrificing devotion, and administrative ability of a high order.

Among the lessons which may be drawn from the Spanish War are the following: (1) that there is need under present conditions in this country of a regular army large enough to attend to a war with a second or third rate power without depending upon volunteers or the militia regiments from the various States; (2) the danger of rushing in such haste that preparation is forgotten and equipment left behind into campaigns in the height of the malarial season in tropical countries; (3) that there is need of a thorough re-organization of the medical department of the army and of substantially all the other departments, which must co-operate in order to secure the best results in sanitation. It is to be hoped that these lessons may not prove unavailing as incentives to rational action in the future.

Of the specific contributions which the war has made to our knowledge of military surgery it is now too soon, in the absence of accurate and detailed reports and statistics, to speak. Suffice it to say that the superiority of the jacketed projectile and small-calibre rifle with smokeless powder, after their adoption by all the important powers of the world maintaining standing armies, has at last forced itself upon the attention of the War Department. We think it at least safe to predict that never in the future shall we be called upon to see American soldiers, whether regulars or volunteers, sent into battle armed with antiquated Springfield rifles and black powder as a target for the enemy.

While the long range and flat trajectory of the modern rifles give them an immense advantage in effectiveness, the small size and hardness of the bullets render many of the wounds produced by them less serious than those caused by the old leaden bullets, and the experience of the war has given ground for the hope that the fatal casualties will bear a far smaller proportion to the total number in the future than in the past.

The good results following the immediate application of the first-aid dressings furnished to every soldier were well demonstrated after the battles of San Juan and El Caney, and the results of this and the subsequent antiseptic treatment of the wounds by the army Surgeons were most excellent, and doubtless resulted in great saving of life.

The lack of supplies, of medicine, tents, beds and other necessaries, and the fact that the medical force was entirely inadequate in point of numbers, render the results attained by this overworked medical corps, under the hardest conditions, still more creditable.

THE HEALTH OF THE NAVY IN THE SPANISH-AMERICAN WAR.

The beginning of the Spanish War, to the great credit of the Medical Department of the United States Navy, found this department amply prepared to deal with any possible contingency. We learn from the surgeon-general's report that from the time of the blowing up of the *Maine*, on February 15th, the naval hospitals were equipped to their full capacity, and plans made to extend them as might be required by building pavilion wards on the hospital grounds. The director of the naval laboratory was prepared to furnish supplies in any quantity required, and immediately.

Preparations were made to increase the personnel of the service by holding examinations at the principal seaport cities, but out of 2,000 applications only a small proportion was examined and 42 appointed.

The fact being recognized that the construction of a modern battleship, owing to its division into compartments, as well as other peculiarities, renders it impossible to properly care for a large number of wounded, especially during the progress of a battle, the navy department early decided upon the probable necessity for a hospital ship, and took the important step of equipping such a ship to attend our fleet in West Indian waters. The merchant ship *Creole* was purchased and in sixteen days completely equipped as the hospital ship *Solace*.

Although the proportion of casualties attending the war was so surprisingly small that no strain whatever was placed upon the naval medical department, the hospital ship rendered very great service in the care of the sick and wounded in the naval battles in the West Indies. She brought 57 sick or wounded patients to New York immediately after the battle at San Juan, and later landed 44 army wounded at For-

tress Monroe, and 55 navy sick or wounded and 48 Spanish wounded to the Naval Hospital, Norfolk, Va. Afterward she brought 74 sick from the navy to Boston, to be cared for at the Chelsea Naval Hospital. She also performed invaluable work in the distribution of medical stores and supplies. The example of the navy was later followed by the army in the equipment of the hospital ship *Relief*, and by the Massachusetts Volunteer Aid Association in the equipment of the *Bay State*.

The most remarkable, not to say astonishing, fact in the medical and surgical history of this war, which was pre-eminently a naval war, and of which the decisive battles were fought at sea, was the small number of casualties occurring in the American Navy. The superiority of our navy in armament, armor, personnel, discipline and equipment was so great that battles in which entire squadrons of the enemy's ships were sunk or burned to the water's edge resulted in so few casualties on the American side that the statistics include very low figures, so low, in fact, as to prove of very little value in increasing our knowledge of the casualties to be met with in modern naval surgery. The casualties on the Spanish side were fearful both in numbers and severity, but the demoralization of defeat and the very completeness of the destructive work of our gunnery will probably preclude the elaboration of any accurate report of the injuries to the Spanish side, even if the organization of their medical department might have been sufficient under ordinary conditions for the preparation of such a report, which is a matter of doubt.

In regard to the casualties on the American side the following statistics, taken from the report of the Surgeon-General of the Navy, speak for themselves: In the battle of Manila Bay, when on May 1st six American cruisers sunk or burned to the water's edge six Spanish cruisers, three gunboats and a transport and two tugs (the entire Spanish Phillipine Squadron) protected by the fire of the Cavite arsenal, the casualties on the American side amounted to nine wounded. Most of these were slight and all recovered. No one was killed on the American side. The Spanish loss is still unknown, but may be estimated from the fact that on the flagship *Reina Christina* alone 150 were killed and 90 wounded.

In the engagement of July 3d off Santiago, which resulted in the destruction of Cervera's fleet of four armored cruisers and two torpedo boat destroyers, only one man on the American side was killed and 10 wounded.

The ability to deal with the enemy at ranges at which their own guns were ineffective and the superior gun practice of the Americans were responsible for this wonderfully small mortality.

In the minor engagements along the Cuban coast, where gunboats or torpedo boats were subject to the fire of masked batteries and fortifications at the mouths of harbors, the casualties were more numerous than in the great and decisive naval battles of the war. Five men were killed and three wounded on the torpedo boat *Winslow* off Cardenas on May 11th, and one killed and 11 wounded on the cruisers *Marblehead* and *Nashville* off Cienfuegos.

The greatest number of casualties in the navy during the war occurred to the Marine Battalion which occupied Guantanamo from June 11th to June 20th. In the land engagements necessary in taking and holding this position 6 men were killed and 16 wounded. Among those killed was Acting Assistant Surgeon John Blair Gibbs, of New York, who had volunteered for the service, and was the only naval medical officer killed in the war.

The total list of casualties in the navy during the war amounts to 16 killed and 68 wounded, or a total of 84. Of the 68 wounded 54 were subsequently discharged to duty, eight were invalided from the service, four remained under treatment when the report was published, and two died subsequently as a result of their injuries.

With this list of casualties it is interesting to compare the casualties resulting from the sinking of the *Maine* in Havana harbor on the evening of February 15th. By this catastrophe, out of a complement of 355 men — 290 sailors, 39 marines and 26 officers — 251 men and two officers were killed, and only 102 saved. In employing these figures to estimate the mortality resulting from the employment of torpedoes and mines in naval warfare as compared with that of artillery fire it must be borne in mind that the explosion occurred in time of peace, and at night, when the vast majority of the crew were asleep in the forward part of the ship under which the explosion occurred — in short, at a time when the lack of preparation for such an event had rendered the conditions most favorable for it to result in a large mortality.

Under the conditions of a naval engagement with the fighting force on deck, and the remainder of the crew alert and ready for any emergency, and with boats from other ships, launches and tugs at hand to render assistance, the destruction of life need not have been so great.

Under the conditions of defeat, however, if the vessel were sunk by a torpedo while under the pursuit and galling fire of the enemy, the mortality might reach the same or even greater proportions, although such a result was prevented at the sinking of Cervera's fleet by the activity of the American ships, boats, torpedo boats, converted yachts, etc., in saving the lives of the wounded and drowning Spanish crews. Of the 77 sailors and marines rescued from the *Maine* only 16 were uninjured.

The admirable condition of health in which the Navy and Marine Corps were maintained during the period of hostilities from April 21st to August 12th — 114 days — is shown by the fact that out of an average strength of 26,102 men there were only 85 deaths, 29 being due to injuries and 56 from diseases. The number of deaths from all causes, exclusive of those killed in battle, was 67, or an annual rate of 8.19 per 1,000. Malaria, heat stroke, and diarrheal affections,

all incident to service in tropical climates, proved the chief causes of sickness during the year. The health of the Asiatic Squadron from April 21st to June 30th varied but little from that of the previous year, the ratio per 1,000 on the *Olympia* being less than that for the same period in 1897.

The health of the Marine Battalion which landed at Guantanamo on June 10th, after serving 36 days on board a transport, and held their position there for the remainder of the war, is an instructive example of what discipline and training can accomplish under most adverse climatic conditions. During July and August, the most trying months of the year, this battalion of 588 men held their position at Guantanamo without losing a single man from disease. No case of typhoid fever occurred, and malaria, the most dreaded disease, claimed only 19 cases. The six men who lost their lives at Guantanamo were all killed in battle.

NECROLOGY. — FOREIGN.

Azzio Caselli, M.D., professor of clinical surgery in the University of Genoa, died in August, aged fifty-six.

F. Cohn, professor of botany at Breslau, and one of the founders of the science of bacteriology, died in July.

Professor Crocq, of Brussels, president of the Federative Méd. Belge, died in August, aged seventy-four.

Leopold Ritter von Dittel, M.D., formerly extraordinary professor of surgery in the University of Vienna, died July 28, aged eighty-three.

George Dragendorff, M.D., formerly professor of pharmacology and toxicology in the University of Dorpat, died in April, aged sixty-two.

Carlo Giacomini, M.D., professor of anatomy in the University of Turin, died in August, aged fifty-eight.

Ernest Hart, editor of the *British Medical Journal*, and chairman of the Parliamentary Bills Committee of the British Medical Association, died on January 7, aged seventy-two.

Sir William Jenner, physician in ordinary to the Queen and a former president of the Royal College of Physicians of England, died, in London, December 12, aged eighty-three.

Rudolf Leuckart, M.D., the distinguished bacteriologist of Leipzig, died in that city in September, aged fifty-eight.

W. Moldenhauer, M.D., extraordinary professor of laryngology in the University of Leipzig, died in January, aged fifty-three.

John Murray, M.D., inspector-general of hospitals, Bengal Medical Service, retired, died in Norfolk, Eng., on July 27, aged eighty-eight.

Charles Nicolas, M.D., extraordinary professor of hygiene in the University of Lausanne, died January 28, aged fifty-two.

Jules Emile Pean, M.D., the eminent French surgeon, died in July, aged sixty eight.

Lord Lyon Playfair, the distinguished chemist, political economist and parliamentarian, died, in London, on May 31, aged seventy-nine.

Augustin Prichard, M.D., F.R.C.S., formerly surgeon to the Royal Infirmary, Bristol, and a noted teacher, died in January, aged eighty.

Sir Richard Quain, Bart., M.D., F.R C.P., F.R.S., president of the British General Medical Council, died, in London, on March 13, aged eighty-one.

Ernest Ludwig Schwimmer, M.D., professor of dermatology in the University of Buda Pesth, died February 25, aged sixty.

Salomon Stricker, M.D., professor of experimental and general pathology in the University of Vienna, died in April, aged sixty-four.

Davide Toscani, M.D., professor of legal medicine in the University of Rome, died on September 15.

Joachim Voss, M.D., professor of anatomy and medical jurisprudence in the University of Christiania, died in January, aged eighty-two.

Charles West, M.D., F.R.C.P., founder of and former physician to the Hospital for Sick Children, Great Ormonde Street, London, died March 19, aged eighty-one.

Dr. Zacharin, lecturer on the "Functions of the Heart," at the Imperial College of Medicine, at Moscow, and physician to the late Czar Alexander II, died January 5.

G. Zancarol, M.D., of Alexandria, Egypt, an authority on international hygiene, died in July.

A. von Zenker, M.D., professor of pathological anatomy in the University of Erlangen, died in August, aged seventy-three.

NECROLOGY. — UNITED STATES.

Philip Stanhope Barbour, M.D., superintendent of the Louisville, Ky., City Hospital, died November 14, aged fifty-one.

Charles Morris Fischer, M.D., Oakland, Cal., professor of histology of Cooper Medical College, San Francisco, Cal., died July 29, aged thirty-two.

Erasmus R. Garrott, M.D., Chicago, chief medical inspector of the Chicago Health Department, died April 19, aged sixty-two.

John Blair Gibbs, M.D., New York, surgeon to the Marine Battalion, U. S. Navy, was killed while in active service at Guantanamo on June 11, aged thirty-nine, and was the first medical officer to lose his life in the war.

H. A. Gilman, M.D., for many years superintendent of the Hospital for the Insane at Mount Pleasant, Iowa, died October 9, aged fifty-three.

Benjamin M. Griffith, M.D., of Springfield, Ill., a well-known sanitarian, died in Springfield, September 24, aged sixty-seven.

John B. Hamilton, M.D., editor of the *Journal of the American Medical Association*, and formerly surgeon-general of the U. S. Marine-Hospital Service, died December 24, aged fifty-one.

Francis L. Haynes, M.D., Los Angeles, Cal., professor of gynecology in the Medical University of Southern California, died October 18, aged forty-eight.

Cornelius N. Hoagland, M.D., of Brooklyn, N. Y., the well-known philanthropist, and founder of the Hoagland Laboratory, died April 24, aged sixty-five.

Levi Gerrish Hill, M.D., of Dover, N. H., formerly president of the New Hampshire Medical Society, died March 3, aged eighty-five.

Oliver Albert Judson, M.D., of Philadelphia, consulting physician to the Blockley Hospital, died in March.

Nathan Smith Lincoln, M.D., of Washington, D. C., a former vice-president of the Ninth International Medical Congress and president of the Alumni of the University of Maryland, died in August.

W. Abram Love, M.D., professor of physiology and president of the Faculty in Atlanta Medical College, died in Atlanta, Ga., January 21, aged seventy-four.

Claudius Henry Mastin, M.D., LL.D., a distinguished surgeon and one of the organizers of the first Congress of American Physicians and Surgeons, died in Mobile, Ala., October 3, aged seventy-two.

George McCreary, M.D., major and surgeon, U. S. A., died at sea on the transport *Catania*, on August 23.

Ambrose M. Miller, M.D., a former superintendent of the Illinois State Asylum for Feeble-Minded, died in Lincoln, Ill., April 2.

Thomas Jefferson Moore, M.D., professor of clinical medicine in the University College of Medicine at Richmond, Va., died on February 24, aged fifty-eight.

John F. Morse, M.D., of San Francisco, Cal, a distinguished surgeon and chief surgeon to the German Hospital of San Francisco, died August 23.

William Lindsley Mussey, M.D., demonstrator of anatomy and professor of dermatology and syphilography in the Women's Medical College of Cincinnati, died September 8.

John L. Neilson, M.D., medical inspector, U. S. Navy, died in Boston, Mass., September 1, aged fifty-four.

Joseph O'Dwyer, M.D., the perfecter and introducer of intubation of the larynx in diphtheria, died in New York, January 7, aged fifty-seven.

Abraham M. Owen, M.D., one of the organizers of the Pan-American Medical Congress, died in Evansville, Ind., September 19.

Richard Channing Moore Page, M.D., of New York, a well-known medical author and teacher, died in Philadelphia, on June 19, aged fifty-seven.

Theophilus Parvin, M.D., LL.D., professor of obstetrics and gynecology at the Jefferson Medical College, died in Philadelphia, on January 29, aged sixty-nine.

William Pepper, M.D., LL.D., professor of the theory and practice of medicine in the University of Pennsylvania, died July 28, aged fifty-eight.

Foster Pratt, M.D., of Kalamazoo, a former president of the Michigan State Medical Society, died August 12, aged seventy-five.

William H. Robb, M.D., of Amsterdam, N. Y., a former vice-president of the New York State Medical Association, died in Selma, Ala., January 12, aged fifty-four.

Edward Constant Seguin, M.D., formerly professor of diseases of the nervous system in the College of Physicians and Surgeons of New York, died February 19, aged fifty-five.

Alan Penniman Smith, M.D., of Baltimore, one of the trustees of Johns Hopkins University, died July 18, aged fifty-eight.

A. P. Snow, M.D., a former president of the Maine Medical Association, died October 25, aged seventy-two.

J. Q. A. Stewart, M.D., for sixteen years medical superintendent of the Kentucky Institution for the Training of Feeble-Minded Children, died on January 25, aged sixty-nine.

Richard M. Swearingen, M.D., of Austin, Texas, State health officer of Texas for twelve years, died on August 7, aged sixty.

Francis Walton Todd, M.D., a former president of the California State Medical Society, died at Capitola, Cal., August 5, aged eighty-two.

John G. Truax, M.D., of New York City, one of the founders of the New York State and County Medical Associations, died on February 16, aged fifty.

Charles L. Wells, M.D., of Minneapolis, professor of diseases of children in Minnesota State University, died January 20, aged fifty-six.

Robert A. Wheaton, M.D., of St. Paul, Minn., clinical instructor in surgery in the University of Minnesota, died February 25, aged thirty.

Henry Parke Custis Wilson, M.D., vice-president of the American Gynecological Society, died in Baltimore, Md., December 27, 1897, aged seventy.

NECROLOGY. — MASSACHUSETTS MEDICAL SOCIETY.

Elisha Wilbour Aiken, M.D., M.M.S.S., died in Hingham, April 13, aged seventy.

J. Richmond Barss, M.D., M.M.S.S., of Malden, died in Hanover, October 25, aged forty-nine.

C. B. Belt, M.D., M.M.S.S., of South Boston, died on August 23, aged fifty.

Josiah Mark Blood, M.D., M.M.S.S., died in Ashby, November 19.

Henry C. Bowen, M.D., M.M.S.S., surgeon of the Second Massachusetts Volunteers, died in Santiago, in October, aged thirty.

Charles Hale Brown, M.D., M.M.S.S., died in Boston, February 28.

Thomas Runnells Clement, M.D., M.M.S.S., died at Osterville, September 24, aged seventy-five.

George Albert Coburn, M.D., M.M.S.S., died in Cambridge, September 2, aged fifty-two.

George Danforth Colony, M.D., M.M.S.S., died in Fitchburg, October 2, aged seventy.

Joseph Daniel Crouch, M.D., M.M.S.S., died in Cambridge, March 16, aged forty-five.

Erastus Calhoun Coy, M.D., M.M.S.S., died in Turner's Falls, December 28, 1897, aged sixty-five.

John Benedict Curtis, M.D., M.M.S.S., died in East Cambridge, October 1, aged thirty-one.

David Robert Dewey, M.D., M.M.S.S., died in North Adams, November 5, aged thirty-four.

Edgar Simon Dodge, M.D., M.M.S.S., died in Natick, April 5, aged forty-four.

George Carroll Dolliver, M.D., M.M.S.S., of Boston, died in Arlington, December 30, aged twenty-eight.

Joseph Bassett Fobes, M.D., M.M.S.S., died in Bridgewater, August 31, aged eighty-three.

Charles Leonard Fox, M.D., M.M.S.S., died in Lowell, October 5, aged twenty-eight.

George Edward Freeman, M.D., M.M.S.S., died in Brockton, June 12, aged forty-six.

George Melville Frost, M.D., M.M.S.S., died in Peabody, June 20, aged fifty-five.

Harlow Gamwell, M.D., M.M.S.S., died in Westfield, August 11, aged sixty-three.

David Webb Hodgkins, M.D., M.M.S.S., died in East Brookfield, April 19, aged sixty-three.

Charles Moses Holmes, M.D., M.M.S.S., died in Northampton, October 7, aged thirty-nine.

George Thomas Hough, M.D., M.M.S.S., died in New Bedford, March 24, aged sixty-one.

Woodbridge Ruggles Howes, M.D., M.M.S.S., died in Hanover, February 5, aged eighty.

Eben Jackson, M.D., M.M.S.S., died in Somerville, June 22, aged seventy-three.

Arthur Kemble, M.D., M.M.S.S., died in Salem, October 27, aged fifty-nine.

Edward Hamilton Kidder, M.D., M.M.S.S., of Fall River, died July 16, aged thirty-three.

Charles Lorenzo Knowlton, M.D., M.M.S.S., died in Northampton, July 5, aged seventy-four.

John Parker Maynard, M.D., M.M.S.S., of Dedham, died February 26, aged eighty-one.

William Morrison Moore, M.D., M.M.S.S., died in Provincetown, June 10, aged forty-nine.

Charles Henry Ricker, M.D., M.M.S.S., died in Lowell, March 16, aged forty-two.

Joseph Stedman, M.D., M.M.S.S., of Jamaica Plain, died in Watkins, N. Y., May 16, aged six-two.

Calvin Stevens, M.D., M.M.S.S., formerly of Boston, died in Auburndale, March 1, aged eighty-one.

William Newcomb Stone, M.D., M.M.S.S., died in Wellfleet, October 17, aged fifty-three.

Jan Joseph Bastianus Verrmyne, M.D., M.M.S.S., formerly of New Bedford, died in Francestown, N. H., August 16, aged sixty-three.

Frederick William Vogel, M.D., M.M.S.S., of Roxbury, died July 16, aged fifty-two.

Edmund Walsh, M.D., M.M.S.S., of East Cambridge, died October 19.

Charles Pomeroy Worcester, M.D., M.M.S.S., died in Newtonville, October 9, aged thirty-seven.

John Yale, M.D., M.M.S.S., of Ware, died in Beloit, Kan., February 25, aged seventy-seven.

Joseph Cummings Yale, M.D., M.M.S.S., died in Cambridge, June 26, aged fifty.

Aaron Young, M.D., M.M.S.S., died in Belmont, January 13, aged seventy-nine.

During the year forty members of the Society have died, eight more than in the preceding year. The average age was fifty-three and four-tenths years, that of 1897 having been fifty-six years, and that of 1896, fifty-seven and one-half years. Four were eighty years or over, and eleven seventy years or over. The lowest age of death was twenty-eight and the highest eighty-three.

MEDICAL NOTES.

Death of Dr. John B. Hamilton. — Dr. John B. Hamilton, formerly Surgeon-General of the United States Marine-Hospital Service, died at Elgin, Ill., December 24. For over a year he had been superintendent of the State Asylum for the Insane at Elgin. He was born in 1847 in Otter Creek, Jersey County, Ill., and was graduated at Rush Medical College, Chicago, in 1869. In 1874 he was appointed assistant surgeon in the United States Army, but resigned in 1876 to enter the Marine-Hospital Service. Three years later he became supervising surgeon-general of that service. He introduced the first visual examination of pilots and the physical examination of seamen as preliminary to shipment. In June 1891 he resigned his commission. He was stationed at Chicago for three years in charge of the Marine-Hospital Service, but in 1896 resigned.

Dr. Hamilton was professor of surgery of the Rush Medical College and the Chicago Polyclinic, surgeon to the Presbyterian Hospital and consulting surgeon to St. Joseph's Hospital and the Central Free Dispensary, and was the editor of the *Journal of the American Medical Association*.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the two weeks ending at noon, December 28, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 97, scarlet fever 38, measles 258, typhoid fever 15.

Poisoning by Strychnine Pills. — A four-year-old child of John Steele, of East Boston, ate a box of strychnine pills recently, supposing them to be candy, and died within a short time.

Fined for Expectorating in the Cars. — In the Third District Court at Cambridge last week, Judge Almy imposed a fine of one dollar in the case of Anthony Zarrell, charged with violating the rule aginst expectorating in street cars.

Annual Report of the Lynn Hospital. — This report shows that in the past year 772 patients have been admitted to the Lynn Hospital and 770 have been discharged from the institution. There were 84 deaths. The treasurer reported that $18,693 was received, and $15,191 expended during the year.

NEW YORK.

A Nun as Postmistress. — Sister Polycarpa, of the Order of St. Dominic, who is said to be the only nun in the United States who ever held such an office, has been appointed postmistress at St. Joseph's, Sullivan County. Two years ago the sister was advised by her physician to go to this neighborhood, on account of incipient tubercular trouble, and while there she devised the plans for the establishment of a sanitarium for consumptives, which was built last summer by the nuns of her order connected with St. Catherine's Hospital in Brooklyn, and over which she now presides.

METEOROLOGICAL RECORD

For the week ending December 17th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

Date.	Barometer.	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...11	29.45	30	35	26	64	58	61	S.W.	W.	14	14	O.	C.	
M..12	29.65	28	31	20	58	100	79	N.E.	N.W.	6	14	N.	S.	.06
T...13	29.97	16	23	8	87	74	80	N.W.	N.W.	8	14	C.	C.	
W..14	30.42	12	24	0	64	64	64	S.W.	S.W.	9	13	C.	C.	
T...15	30.54	24	30	17	64	94	44	W.	N.E.	13	3	O.	C.	
F...16	30.48	27	39	15	63	44	54	W.	S.W.	6	12	O.	C.	
S...17	30.15	37	43	31	70	80	75	S.	S.E.	8	2	O.	O.	
☞														

* O, cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thunderstorm; N., snow. † Indicates trace of rainfall. ☞ Means for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 17, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . .	3,438,899	1268	295	6.00	22.88	.80	.96	2.08
Chicago . . .	1,619,226	—	—	—	—	—	—	—
Philadelphia .	1,240,226	—	—	—	—	—	—	—
St. Louis . .	625,000	—	—	—	—	—	—	—
Boston . . .	528,463	208	52	9.12	20.16	1.44	1.92	2.88
Baltimore . .	506,389	201	60	6.50	20.50	2.00	.50	2.50
Cincinnati . .	405,000	—	—	—	—	—	—	—
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	295,000	99	38	13.13	23.23	2.02	6.06	2.02
Washington . .	277,000	118	27	12.75	17.00	1.70	.85	5.95
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence. .	150,000	55	16	9.10	10.92	3.64	1.82	—
Nashville . .	87,754	26	9	—	5.32	—	—	—
Charleston . .	65,165	28	6	—	10.71	—	—	—
Worcester . .	106,340	27	6	11.11	3.70	—	7.40	3.70
Fall River . .	95,919	32	11	6.26	25.00	6.26	—	—
Cambridge . .	89,724	30	3	6.66	10.00	—	—	3.33
Lowell . . .	88,641	28	7	7.14	28.56	—	—	7.14
Lynn . . .	68,702	18	2	16.66	16.66	—	5.55	5.55
New Bedford .	66,340	20	7	10.00	25.00	5.00	—	5.00
Somerville . .	61,101	26	2	3.84	19.20	—	—	3.84
Lawrence . .	57,363	17	12	17.64	23.52	—	—	5.88
Springfield . .	56,501	16	2	18.75	6.25	—	12.50	6.25
Holyoke . . .	43,424	8	2	12.50	12.50	—	—	12.50
Brockton . .	37,378	11	2	—	9.09	—	—	—
Salem . . .	36,863	9	1	11.11	—	—	11.11	—
Malden . . .	34,613	8	1	—	37.50	—	—	—
Chelsea . . .	33,468	13	2	—	23.07	—	—	—
Haverhill . .	32,622	7	0	—	—	—	—	—
Gloucester . .	30,569	4	3	—	—	—	—	—
Newton . . .	29,716	14	3	—	21.42	—	—	—
Fitchburg . .	29,438	14	—	7.14	—	—	7.14	—
Taunton . . .	28,167	15	3	6.66	6.66	6.66	—	—
Everett . . .	25,338	5	1	40.00	—	—	20.00	20.00
Quincy . . .	23,549	7	3	14.28	—	—	—	14.28
Pittsfield . .	22,843	—	—	—	—	—	—	—
Waltham . . .	21,812	8	2	12.50	—	—	—	12.50
North Adams .	20,971	6	1	—	—	—	—	—
Chicopee . .	17,842	8	2	—	12.50	—	—	—
Medford . . .	16,511	3	0	33.33	—	—	33.33	—
Newburyport .	14,915	7	0	—	14.28	—	—	—
Melrose . . .	14,032	4	0	20.00	—	—	—	—

Deaths reported 2,380; under five years of age 586; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 172, acute lung diseases 479, consumption 271, diphtheria and croup 60, typhoid fever 34, diarrheal diseases 27, scarlet fever 18, measles 9, whooping-cough 8, cerebro-spinal meningitis 8, erysipelas 4, malarial fever 2.

From scarlet fever New York 13, Pittsburg, Washington, Lynn and Lawrence 1 each. From measles New York 7, Washington and Lawrence 1 each. From whooping-cough New York 4, Pittsburg and Providence 2 each. From cerebro-spinal meningitis New York 3, Washington 2, Baltimore, Lynn and New Bedford 1 each. From erysipelas Baltimore 2, Washington and Cambridge 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 11,218,578, for the week ending December 10th, the death-rate was 17.5. Deaths reported 3,835; acute diseases of the respiratory organs (London) 295, diphtheria 92, measles 84, whooping-cough 59, diarrhœa 56, scarlet fever 32, small-pox (Liverpool) 1.

The death-rates ranged from 12.4 in Derby to 27.2 in Bolton; Birmingham 18.9, Bradford 16.1, Cardiff 16.4, Gateshead 15.6, Hull 15.4, Leeds 18.8, Liverpool 22.0, London 16.7, Manchester 20.1, Newcastle-on-Tyne 18.7, Nottingham 19.2, Portsmouth 20.7, Salford 18.4, Sheffield 16.8, Sunderland 23.2

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DECEMBER 22, 1898.

WILLIAMS, L. L., passed assistant surgeon. To report at Hygienic Laboratory, Washington, D. C., for temporary duty. December 19, 1898.

STEWART, W. J. S., passed assistant surgeon. To proceed to certain ports as inspector. December 21, 1898.

CUMMING, H. S., assistant surgeon. To report at Hygienic Laboratory, Washington, D. C., for temporary duty. December 19, 1898.

FOSTER, M. H., assistant surgeon. Upon expiration of leave of absence to proceed to Savannah, Ga., and assume command of Service. December 19, 1898.

WHITE, MARK J., assistant surgeon. To proceed to Stapleton, Staten Island, N. Y., and report to commanding officer for duty and assignment to quarters. December 19, 1898.

Board convened to meet at Washington, D. C., December 19, 1898, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon G. T. VAUGHAN, Chairman; Passed Assistant Surgeon W. J. S. STEWART, Recorder.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 2d, at 8 o'clock.

Dr. M. H. Richardson: "Diverticulum of the Esophagus, with Extirpation."

Dr. Henry R. Stedman: "A Case of Symmetrical Gangrene."

Dr. C. W. Townsend: "Remarks on Infant Feeding, with Special Reference to the Home Modification of Milk."

Election of officers.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.— The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, January 4, 1899, at 8.15 o'clock.

The presentation of patients operated upon for foreign body in the throat; some x-ray photographs, Drs. D. W. Cheever, Abner Post, F. B. Harrington, H. L. Burrell, S. J. Mixter and J. W. Elliot.

The presentation of other interesting surgical cases as follows:

"A Case of Stricture of the Esophagus," Dr. R. W. Lovett.

"A Case of Malignant Disease of Various Abdominal Organs," Dr. G. H. Monks.

"A Case of Wound of the Thoracic Duct during Operation," Dr. F. B. Lund.

"Remarks on Laminectomy," with the presentation of a patient, by Dr. J. C. Munro.

The presentation of specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

WILLIAM H. THORNDIKE PRIZE.

The William H. Thorndike Prize, for 1898, has been awarded by the Faculty of the Harvard Medical School to Dr. Joseph William Courtney, of Boston. The subject of the essay was, "A Critical Study on Traumatic Cerebral Edema: its Pathology and Surgical Treatment."

W. L. RICHARDSON, *Dean*.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-eighth Annual Report of the Central State Hospital of Virginia (Petersburg, Va.), for the Fiscal Year ending September 30, 1898.

Degeneracy; Its Causes, Signs and Results. By Eugene S. Talbot, M.D., D.D.S., Fellow of the Chicago Academy of Medicine; Member of the Chicago Academy of Sciences; Honorary Member of the Berlin Odontologische Gesellschaft. With 130 illustrations. London, Paternoster Square: Walter Scott. 1898.